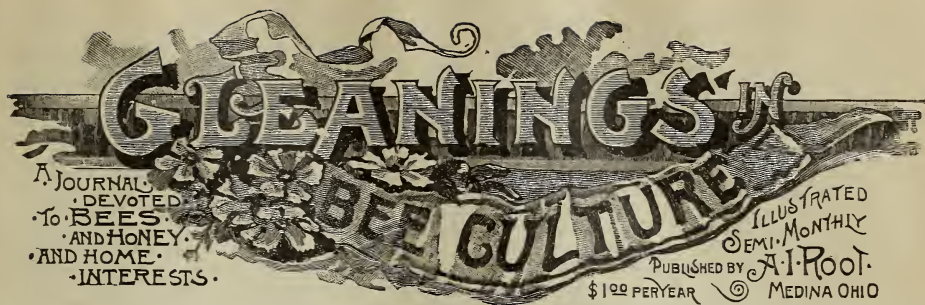


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Vol. XXI.

MAR. 15, 1893.

No. 6.

STRAY STRAWS

FROM DR. C. C. MILLER.

A THIRD CASE has been reported in *Centralblatt*, of a queen having been fecundated in the hive.

A FIRM IN GERMANY consumes yearly about 40,000 lbs. of ceresin for foundation.—*Centralblatt*.

MORE DEATHS occur in a day now than in a week at the beginning of winter. I mean in the hives.

THE HAYCK sectional hive is described in *A. B. J.* by W. J. Cullinan, with straw walls $1\frac{1}{2}$ inches thick.

"PAUPER SWARMS" is what they call "hunger swarms" in the South,—those which swarm out for want of stores.

IF THOSE CARAMELS made by Muth & Son get to be well known, there will be a bigger market for honey in Cincinnati.

FRANK McNAY's report, p. 173, would seem a little fishy if I knew nothing about the man. But Frank isn't a fishy sort of man.

MY BEES do just as W. Halley says on p. 173. If it's cold enough they'll stay above the bee-escape. In that respect the Larrabee escape has an advantage.

"WINTER LINGERS in the lap of Spring" sometimes. This time Winter seems to have pushed Spring off on to the floor, and sat down in the chair himself.

MY, OH! but doesn't Hasty just come down savage on the Washington system of grading! If I had backbone enough I think I'd stand up in a straight row beside him.

ISN'T THERE DANGER some one will choke trying to swallow that story on p. 178? I mean where the bees "sot" the fruit in one corner of a garden and failed in t'other.

"IN SUNNY SOUTHLAND" is the happy title of Mrs. Jennie Atchley's Southern department in *A. B. J.*, in which she is now giving some sound instruction to an A B C class.

DIDN'T YOU make a mistake on page 192, and get the wrong picture? That looks just like the original Miller feeder, only it has wire cloth on it, and Manum's name under it.

THE GENERAL TEACHING—and I suppose it's right—is to see that a good share of young bees are in a newly formed colony. Yet the largest surplus of extracted I ever got was from a colony started with no young bees. I merely set a hive of empty combs, no bees, in place of a removed colony, and put in a queen.

KEEP CELLARS cold enough and you'll not be troubled with dead bees on the floor. They'll just die in the hive, queen and all, and stay there, leaving the cellar bottom clean and nice.

THAT PLAN to get rid of laying workers, on p. 178, is a long way behind the plan I use, if my plan works as well with others as with me. Just drop in the hive a "pulled" queen. That's all.

O Rambler! you old bach,
With quail on toast galore;
I'd greatly joy to snatch
A few from out your store.

But then, I'm not a hog.
To eat them all alone:
Nor yet a snarling dog.
A gnawing at a bone.

But rather would I live
With some sweet "surup" neat,
Who dainty touch could give,
And then could help me eat.

WHEN I READ some of the stuff that is printed in papers that are not bee-papers, under the head of apicultural literature, I feel exceedingly thankful to the editors of our bee journals for what they *don't* print.

SEALED COVERS get a black eye from Geo. S. Wheeler, in *A. B. J.* Colonies under them in bad condition, with several dead, while those with cushions are all right. Ought there not to be cushions over the sealed covers?

H. REEPEN, in the German *Centralblatt*, gives the fullest *resume* that I know about, of the noticeable items of bee literature in both home and foreign journals. He mixes in with it enough Reepen to make it very readable.

A HONEY-BEE CONCERT is recommended by F. A. Gemmell, in *C. B. J.*, consisting of music, interspersed with short lectures on bees, honey, etc. He thinks such a scheme, in connection with conventions, would help the honey-market.

BEES ARE CHEAPER than I supposed. Averaging replies of veterans in *A. B. J.*, a colony in box hive is worth \$2.19 in fall, and \$3.21 in spring. Highest price given is in Nebraska, \$5 to \$8 in spring; lowest in Massachusetts, \$0.00 in fall.

BEE-LICE, for some reason, don't seem to thrive in this country. Elsewhere they seem troublesome, if not dangerous, one German bee-keeper reporting that, on one day, he removed more than 40 lice from a queen, and the next day more than 30.

J. E. POND reports in *A. B. J.*, that, in his locality, bees are worth "nothing in the fall, and \$2.00 in spring." Wouldn't it be a good scheme to buy up 1000 colonies at the regular

price in fall, cellar them, and sell in spring? If even half die, \$1000 wouldn't be such bad pay for hauling and wintering.

IS THE SMELL in your cellar all right? If it isn't, make it right. Get the bad air out and good air in, somehow. Fire is a great sweetener. Even when the cellar's too warm, a fire to change the air will leave the bees quieter as soon as it cools off.

I DON'T LIKE Hasty's review in *Review*—at least, not entirely. To begin with, the type in the headings is too lean and lank—looks as if it needed to be fed up. In the next place—well, in the next place every thing else is all right, A 1, tip-top, just as I expected.

SMOKERS, heretofore, have either had the cut-off, or else sucked smoke into the bellows. The *Review* illustrates Daggit's smoker with a double bellows, like a blacksmith's, that throws a continuous stream with no suck-back. Why didn't some one think of that before?

THE THERMOMETER went up to 45° Feb. 27, the highest for many weeks. If bees had been out I think they would have flown a little, the first time since the beginning of November, and there was no really good flight after the last week of October. But Feb. 28 it was down again to 11°.

LANGSTROTH'S REMINISCENCES.

GETTING THE MOVABLE FRAME INTRODUCED;
INVENTION OF THE HONEY-EXTRACTOR, ETC.

In the spring of 1852, having disposed of the good will of my school for young ladies, I gave my whole attention to my apiary in West Philadelphia. It was there that I gained the practical experience in the management of movable-frame hives which prepared me for writing my first work on bees. Before the close of that season I was so completely prostrated by an unusually severe attack of my old head trouble that I was not only unable to give any personal attention to the bees, but could not even give the necessary instructions to my assistant. This compelled me to sell my bees, and abandon the business for a season. As I glance back over the past years, how often can I recall similar experiences, when, in the heat of the race, and sometimes with the goal of success apparently almost gained, I have sunk down on the course, unable to take another forward step! I write these words with no disposition to murmur against any of God's providential dealings with me. I know that the Judge of all the earth can not but do what is right. I look forward to the time when all his dealings with us shall be made plain, and desire humbly and lovingly to use the words of the dear Savior, "Even so, Father, for so it seemed good in thy sight."

The patent on my hive was issued Oct. 5, 1852. I then decided to leave my wife and our two daughters in Philadelphia, the daughters to attend a young ladies' school in which my wife had accepted the position of assistant teacher, while I made my residence in the family of my brother-in-law, Mr. Almon Brainard, of Greenfield, Mass.

When I parted from my beloved wife, in November, 1852, the future was mercifully hidden from me. I was to have no settled home for nearly six years, and for more than three-fourths of that time I was to be separated from my dear ones! I had recovered from my head trouble, and at once began to write my book on bees. The larger part of the manuscript was sent, as fast as written, to my wife, to be copied into a legible hand for the printers; for in the

ardor of composition I wrote a scrawl which only she and I could decipher.

With the pecuniary aid of my kind brother-in-law, the sheets of a small edition of this book were printed in Greenfield; and in the spring of 1853, "Langstroth on the Hive and Honey-bee" was published by Hopkins, Bridgman & Co., of Northampton, Mass. What the wife of Huber was to him in his blindness, my dear wife was to me. Without her labors, out of school hours, that winter, it would have been impossible for me to prepare my work for the press. Never once did she even intimate that she was overtasked, and all her letters breathed such an unselfish spirit as can be attained by only the loftiest and purest characters. I shall say no more, at this time, of this beloved companion, than to put on record the fact that, in our married life of over thirty-six years, I can not recall a single experience in which I knew her to seek her own happiness at the expense of others.

While residing in Philadelphia, although without a pastoral charge, I preached probably more than half of my Sabbaths; and when I returned to New England I supplied the pulpit of the Congregational Church in Colerain, near Greenfield, the larger part of the time till the fall of 1857. My wife and daughters spent their school vacations in July and August with me in Colerain, where our son was living very near to us, working on a farm. Oh those happy reunions! Memory still loves to dwell upon them. Each one was a bright oasis in those long separations; for such a struggle was I compelled to make to support my family, that I was seldom able to make them more than one short visit a year.

When I determined to apply for a patent, as I had neither the money nor the business qualifications needed for its profitable introduction, I thought myself fortunate in being able to secure the services of a firm which had been quite successful in selling patents; but business reverses prevented them from carrying out our agreement. While writing my book, Dr. Joseph Beals, one of my former Greenfield parishioners, offered, for an interest in the invention, to furnish means for the manufacture of the hives, and for establishing an apiary. Dr. Beals was a very able dentist, but without any experience in patent matters or in bee-keeping, while I was frequently prostrated by the old head trouble. Although much was done to introduce the movable-comb hive to the public, we met with no adequate pecuniary success; and after some years we closed up our business, without any abatement of the old friendship, the doctor having lost much time but no money by his venture.

Having given, by a quotation from my private journal, my belief of the results which would flow from the invention of movable frames, I shall now give an extract from the advertisement inserted in my book, published in May, 1853:

"L. L. LANGSTROTH'S MOVABLE-COMB HIVE,
PATENTED OCT. 5, 1852.

"Each comb in this hive is attached to a separate movable frame, and in less than five minutes they may all be taken out without cutting or injuring, or at all enraging the bees. Weak stocks may be quickly strengthened by helping them to honey and maturing brood from stronger ones. Queenless colonies may be rescued from certain ruin by supplying them with the means of obtaining another queen, and the ravages of the moth effectually prevented, as, at any time, the hive may be readily examined, and all the worms, etc., removed from the combs. New colonies may be formed in less time than is usually required to have a natural swarm; or the hive may be used as a non-

swarmer, or managed on the common swarming plan. The surplus honey may be taken from the interior of the hive on the frames, or in upper boxes or glasses, in the most convenient, beautiful, and salable forms. Colonies may be safely transferred from any other hive to this, at any season of the year from April to October, as the brood, combs, honey, and all the contents of the hive, are transferred with them, and securely fastened in the frames. That the combs can always be removed from this hive with ease and safety, and that the new system, by giving perfect control over all the combs, effects a complete revolution in practical bee-keeping, the subscriber prefers to *prove* rather than assert. Practical apiarians, and all who wish to purchase rights and hives, are invited to visit his apiary, where combs, honey, and bees will be taken from the hives; colonies which may be brought to him for that purpose, transferred from any old hive; queens, and the whole process of rearing them, constantly exhibited; new colonies formed, and all processes connected with the practical management of an apiary fully illustrated and explained.

The gist of the whole matter is found in my offering to give to all who would visit my apiary a practical demonstration that the perfect control over all the combs effects a complete revolution in practical bee-keeping. The more a man knew about bees, the easier it was to convince him that there was no exaggeration in such a claim, and this was the reason why Moses Quinby, Prof. Jared Kirtland, and men of that stamp, became such ready converts to the movable-comb system. L. L. LANGSTROTH.

Continued.

MANUM IN THE APIARY.

REDUCING STOCK AND MELTING UP COMBS; UNFINISHED SECTIONS NOT PROFITABLE, ETC.

"Good-afternoon, Henry. I think you must be very courageous to travel six miles this stormy day."

"Well, Manum, you see it did not storm like this when I started from home. But then, this storm is nothing to be compared with what you and I had to endure at times, during the war. Do you remember the time we came in from picket duty, in February, 1863, during that storm of snow and rain, driven by a strong wind? and how wet we were, and no warm house like this in which to change our wet clothes for dry ones? I well remember what you said when you were trying to pull off your wet woolen shirt in that cold dreary tent. You looked up to me, shivering and smiling, and said, 'Hen, this is a little tough on one's patriotism; but then, it must be endured for the love of union and freedom. But if I ever get out of this scrape, Hen, and get back to old Vermont, you can then mark me down as a home boy. Here! do help me off with this wet shirt.' Ha, ha, ha!"

"Yes, Henry, I well remember those dreary days of our army life; also the circumstance to which you refer, although it occurred 30 years ago. I am also reminded that time is passing very rapidly, and that you and I are not the sprightly youths that we were then. Thirty years have passed since that terrible storm we experienced on the picket line. Is it possible? and yet our gray hair is ample proof that the milestone to which you refer is all of 30 years in the rear of us; and still we are journeying on to another mile-stone, which will be appropriately numbered and added to the many we have already passed. Will it be the last? I sincerely hope, however, that Henry B. Isham will be spared to pass many more bright and

shining mile-stones ere he is called to the great tribunal."

"Thank you, Manum, for your good wishes. What are you doing, now that the bees are quiet and nothing to do among them?"

"Well, Henry, I am doing a little of every thing; and while I am telling you all about it, let us go over to the honey-house. But, first, I want to show you a sample of a new variety of oats I am introducing among our farmers. There, Hen, is one head; look at it and heft it."

"My! is that just one head?"

"Yes, one head; there were over 300 kernels on it; but some have fallen off, as it has been handled so much."

"Well, that is far ahead of any thing I ever saw, in oats. What do you call them?"

"They are the 'White Plume,' a new variety which is being introduced this season for the first time in this State."

"What is claimed for them as being superior to other varieties?"

"In the first place, they are more prolific than any other variety, they having yielded 107 bushels per acre on a 20-acre field. They are ten days earlier than our common oats, hence escape being damaged by rust; and, again, the straw is very stocky, so they do not lodge like other varieties."

"Do they sell well?"

"Yes, quite so. Notevery farmer buys them, but enough so they will be well introduced by another season; and those who do buy them this year will have some to sell at good prices to their neighbors next fall, for I sincerely believe they will eventually supersede all others. Here we are; let us go into the storehouse first."

"Well said! What are you doing with these combs that you have here all cut out of the frames?"

"I am melting them up for the wax. You see, Henry, I had combs enough for 1000 colonies, and did have 900 colonies at one time; but owing to the past few poor seasons I have reduced my number of colonies to 500; and now, as I have decided to reduce the number still lower, I am melting my surplus combs."

"Why! it seems too bad to melt up such nice perfect combs."

"Yes; but then, I don't want them, and it is too much work and care to preserve them through the summer, although I have succeeded in keeping the moth-worms out of them by placing the boxes of combs over a sheet of tarred paper, with another sheet over, as you directed me to do; and, as you see, it has proved a success."

"But, Manum, why are you going to reduce the number of your colonies?"

"Well, Henry, the basswoods have been cut off about here to such an extent that I think it will be as well for me to have fewer bees and a less number of apiaries. I think two out-apiaries, with my home yard, will be all I care to look after alone, inasmuch as I am going into the growing of small fruit. I think that fewer bees and more fruit will pay me as well, one year with another, as to devote all my time to bees."

"What are you going to do with this great pile of old sections?"

"I am going to cut the comb out of them for wax, and use the sections for kindling-wood. I have formerly used my sections over the second and third time—that is, those that were not finished by the bees, and from which the honey was extracted; but such, even if filled with the very whitest honey, always sell as second quality, hence I have decided not to use any sections the second time, unless they are perfectly free from stains, and unless the comb in then is perfectly clean and white. There is no use, Hen—

ry; it doesn't pay, these days, to produce second-class honey. Sections are now so cheap that one can not afford to use the stained ones, and then sell the honey two to three cents per lb. less than the same honey will bring in new clean sections. It is too much like spoiling a 50-cent jack-knife to save half a cent. I am ashamed of myself that I have used old sections over and over so long before coming to my senses."

"Have you decided that the bee-business has seen its best days in Vermont?"

"Oh, no! not by any means. There are localities where basswood has not been cut off, and probably will not be, for a good many years. In those places, and where they have clover and raspberries in plenty, it will pay to keep bees; and, in fact, I think it will pay here in a small way, but not as well as formerly. But that is not the only reason why I propose to reduce my number of colonies. You must remember, Henry, that I am not as young as I was once; and to look after so many bees, without help, is a little more than I feel able to do; and inasmuch as good help is so scarce, I think it as well for me to have fewer bees to look after. Although I have managed, and can still manage, 500 colonies alone in five yards, I prefer to have fewer colonies, and devote more of my time to the queen-business as well as to the fruit-business. If I were as favorably located for the bee-business as are Messrs. J. E. Crane, J. H. Larrabee, V. V. Blackmer, and Mr. R. H. Holmes, I would not think of decreasing my number of colonies at present."

"But, Manum, what will you do with all your empty hives and extra clamps, etc.?"

"Well, Henry, I shall offer them for sale at a very low price; and what I can not sell will make splendid kindling-wood. However, I shall not knock them to pieces just yet, as I may wish to again increase my number of colonies, providing the fruit-business does not suit me. In such case I shall doubtless change my location, and try to get a safe distance from wood-working machinery, with the hope that basswoods will be *let alone*. There are yet a few such localities in Vermont that are not occupied; but Bristol is my home, and I dislike to move away if I can avoid it.

A. E. MANUM.

DOOLITTLE'S REPLIES TO INQUIRIES.

NECESSITY FOR EARLY BROOD-REARING; SIZES OF BROOD-NESTS, ETC.

Question.—How many standard Langstroth frames would you use in a hive when working exclusively for comb honey? Should prime swarms issue, which will be the best to produce comb honey, the new swarm or the old colony?

Answer.—I would use just as many standard Langstroth frames in the brood-chamber, when working for comb honey, as the queen had occupied with brood, when the honey-harvest commenced in earnest from clover or basswood, according as either one abounded in the locality I was in. For this reason I would use a ten-frame Langstroth hive; that is, I would have a hive that would hold ten Langstroth frames, and have it so arranged that I could reduce it to only a four-frame hive should I find a queen that would not keep more combs than that number occupied with brood, or a five, six, seven, eight, or nine frame hive, just in accord with the prolificness of the queen. There are a very few queens which will fill ten L. frames with brood, when they are laying their maximum number of eggs; hence we wish a ten-frame hive for these queens; and as we do not

know just which hive will have such a queen, we will make all of our hives to hold ten frames. Far more of the queens will keep only nine frames filled with brood, and for this reason we wish some way of reducing this ten-frame hive to a nine-frame when it is required. Where the hanging frame is used I know of no better way of doing this than by using a 1 $\frac{3}{4}$ -inch board, the same being a little smaller than the inside of the hive below the rabbets, and having the top-bar of a frame nailed to one side of it so it will hang in the hive the same as a frame. Where we find a queen capable of keeping only nine frames filled with brood, and we have ten frames in the hive, take out the one the queen does not occupy, at the beginning of the honey-flow, and slip in the prepared board to take the place of it. But, as a rule, we shall find that by far the larger part of our queens will occupy only eight frames with brood, when we will use one of the boards on each side of the hive, instead of both on one side, as this brings the top of the hive in better shape for the bees to work to the best advantage in the sections. A few of our queens may not prove up to the average as to prolificness, consequently we wish to reduce the size of the hive still further in such cases, and for this further reducing I prefer to use two frames spiked together, having $\frac{3}{4}$ lumber nailed on each side, thus making what is known as a "dummy." With these boards and dummies you are to contract each hive to suit the laying capacity of each queen, in the very commencement of the honey harvest, if you would secure the best results in comb honey. Why? Because, if you allow the bees to make a start at storing honey of any amount in the brood-frames, it will be found that they will be loth to enter the sections; and instead of doing so they will keep on storing in the brood-chamber, crowding the queen more and more in her brood space, till at the end of the season you will have very little honey in the boxes, and very few bees in the hive below to go into winter quarters.

Of all the most damaging things to a crop of comb honey, I believe this having lots of empty combs in the brood-chamber at the beginning of the honey harvest is the worst, with the average bee-keeper. Strive to have every queen do her level best at brood-rearing for one month to six weeks before the expected harvest, so that the maximum number of bees may come with the beginning of the harvest; then take away all comb unoccupied with brood, and put on the sections, and you are as near perfection, according to my views, as you can well get; and should the season be a good one, you will be surprised at the good results in honey obtained, if you have never tried this before. But why not kill all the unprolific queens we happen to have before the honey-harvest, and thus have queens that will have brood in eight frames at least? Because we can not tell just which of the queens we supposed were good ones last fall will be the failing ones, till near the honey-harvest; and should we then change we shall throw the colony into an abnormal condition which will work against our securing as good results from that colony as we should have secured had we left the poor queen till the end of the harvest and then replaced her. By "abnormal condition," I mean this: This young prolific queen, given near the commencement of the honey-harvest, will not be content with the number of combs the old queen was occupying; and if confined to these, swarming during the middle of the harvest will be the result, which all know would blight our prospects of honey of any amount from that colony; and if we gave this queen all the room she needed, say nine frames, it would either result in the bees

crowding her down with honey, as spoken of above, or in their using the most of the honey brought in from the fields in feeding the large quantity of brood she would bring about, which brood would hatch so late that the bees from it would become consumers instead of producers. All of these little things have a bearing on the results obtained from the apiary; and as "many a little makes a mickle" when piled up on the right side of our financial column, so in the same way they help to make us badly discouraged when piled up on the wrong side. It behooves us, therefore, to look well after these things and know that all we do tends to move things in the right direction.

But I have dwelt longer on this part than I expected to, so must be short in regard to which will produce the most comb honey, the swarm or old colony. If the swarm comes ten days or more in advance of the harvest, and the old colony is not allowed to swarm again, with proper management this will give the best results. On the other hand, if the swarm comes at the commencement of or during the honey-harvest, then every thing should be turned to the advantage of the swarm, for this will give the most.

G. M. DOOLITTLE.

Borodino, N. Y., Feb. 25.

RAMBLE NO. 80.

AT HERRICK'S.

After the whiffletree episode in our last, we had settled down to our usual cogitations and observations, when we were again startled up to the qui-vive state. A woman on horseback came dashing around the curve just ahead of us at a breakneck speed; and our frantic efforts, with whip-persuader and voice, to get our steeds and ourselves out of the narrow road, resulted in just moving their heads a little sideways. The female and her broncho dashed in beside Bob, and another leap landed them out in the sage bushes, stones, and boulders, where the rearings and gyrations were bewildering to follow; and open-eyed "me" could do nothing but behold her rawhide come down with a swish, swish. The broncho bounded over a boulder into the road in the rear of us, and with another swish, swish, of the rawhide they were out of sight around the next curve. We both heaved a big sigh of relief, turned our horses' heads back into the highway, and proceeded. What a narrow escape! Suppose she'd been unhorsed, and broken two or three limbs, and fainted! We groaned, as only bachelors can groan, and grew pale at the very idea. From Bro. H.'s remarks, he evidently thought he had met an angel, while the Rambler had a private opinion that it was a witch on a broomstick. After these trying episodes we rattled along down the canyon, and were pleasantly greeted here and there with a purling stream of water. On the bottom lands we saw a great amount of sweet clover, and growing to enormous size. We conjectured that some bee-keeper had scattered the seeds.

The next name we had upon our list of bee-keepers was that of Esq. A. T. Herrick, and we soon came to a fair-sized adobe residence, which proved to be the home of this noted bee-keeper of Campo. We reined our steeds up under a shade-tree, and soon found the proprietor; and our first duty was to examine his choice breed of potatoes which he was harvesting. They were beauties, and were grown on the richest of alluvial land down on the river-bottom. Every kind of garden vegetable was growing in truly California style—immense.

Even the weeds in neglected places were like a young forest in appearance. Large watermelons were lying in profusion on the ground, and a large one was taken into the house for our delectation.

Mr. Herrick's apiary was off in the canyon, as usual, and he, like many others, acknowledged that he did not care for his bees as he ought, and perhaps, like others, he felt a little discouraged over the two successive poor seasons and empty receptacles. He also facetiously remarked that a good season had discouragements when receptacles enough could not be obtained to store the honey; therefore, being discouraged in both good and poor seasons, the bees were neglected.

At this altitude—2500 feet—the season was much later than lower down, and there was usually very little swarming. This feature was so pronounced that it was hard to keep an apiary up to a given number unless bees were brought up from the swarming-belt. Mr. H. had practiced migratory bee-keeping, and had moved bees over the divide toward the Colorado Desert, and secured a yield from mescal; but this honey has the quality of aloes, and, when eaten, acts like a cathartic, and, I believe, the plant is called the American aloes. A further move of 50 miles would have placed the bees in the midst of the celebrated mesquite, of which there is an endless amount on the desert, and bountiful in the secretion of the most beautiful nectar; but a move of 50 miles into the lonely desert was a little too much of a migrate.

Mr. H. had scattered the seeds of sweet clover; and, though there was a great amount of it, he failed to get much of the honey in his hives, and the only praise he could give it was its good qualities for cattle and horse pasturage.

While eating our melon I noticed in a corner of the room a pile of the finest beeswax I ever saw; and when a proper lull came in the conversation I proceeded to interview him upon his method of rendering, feeling sure that it must be done upon some improved plan. I found the improvement to consist in an extra painstaking method. In the first place, the scraps were thoroughly washed in tepid water. Several changes of water left the comb free from dirt and honey. The clean comb is then put into a clean white cotton-cloth bag, and boiled in a clean porcelain-lined kettle. When the wax was boiled out it was dipped off with a clean dipper, and strained through a clean white cotton cloth into a clean new tin pan. The water for the entire process was clean new rain water, just from the skies. The results were, as above stated, just beautiful virgin wax. As to whether Mr. H. obtained enough extra to pay for his extraordinary care I am not able to state; but the ability to put the nicest wax on the market was probably highly satisfactory to the producer. This method demonstrates that boiling the combs with all of the attendant dirt and honey, in old dirty utensils, will not produce wax fit for exhibition purposes.

While we were deeply engaged upon the wax question, Mrs. H. brought in a bountiful dinner, and we did ample justice to their open-handed generosity. Mr. H. is not only a justice of the peace, but also postmaster. Owing to the dishonest tricks of the postmaster at Campo, Mr. H. was appointed, although he lives three miles from town. This scores another mark in favor of the integrity of bee-keepers.

Books and papers showed the scholarly tastes of the occupants of the adobe; and, though an earthquake had cracked the walls, and a deluge had nearly washed them out, still they loved

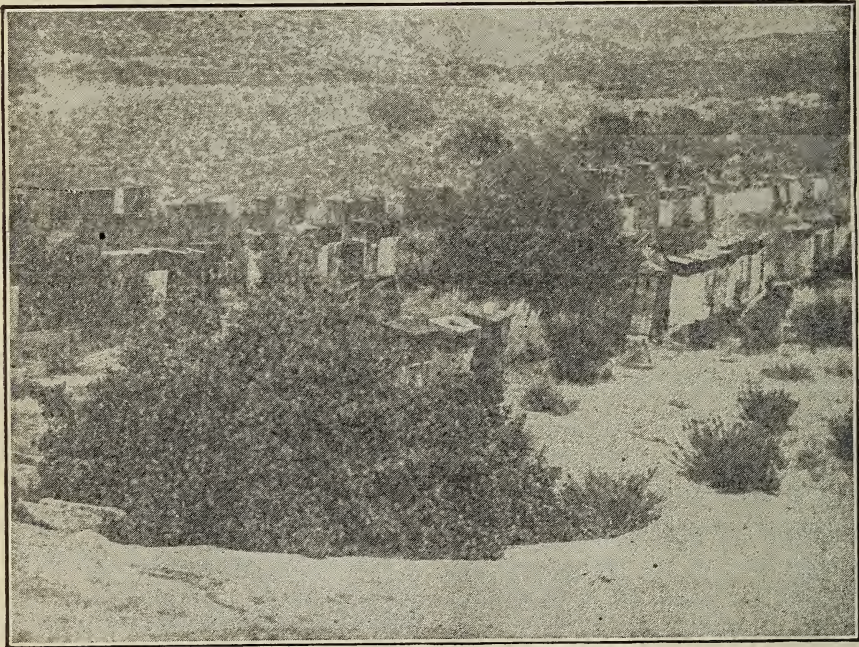
their mountain home, and seemed to enjoy life as well as and probably much better than they would if living in costly marble halls.

Our journey was resumed again, and the country was very rough and wild. Our road was soon crowded into the bed of the stream, which it followed for some distance between frowning rocks. There was but little water running; but during the rainy season travel is sometimes suspended for a time. At the upper extremity of this canyon we find the little town of Campo located in a narrow pass where stones vie in size with the houses.

Campo is within one mile of the Mexican line, and has been the scene of many bloody encounters between Mexican desperadoes and the American residents. In the last attack upon the town, four of the desperadoes were left dead on the streets, and only two of the band escaped. The only store is strongly built of stone, has iron blinds, and looks as though adapted to resist quite a siege. Beyond Campo the country is level again, and large herds of cattle and horses are met.

Our photo shows one of the most neglected and forlorn apiaries it is often our *fortune* to see. The hives are Harbison, with a clumsy, ill-fitting super mounted on the top, making them extra tall. They sat at all angles, and the sage-bushes were so thick before some of the hives that the bees found their way through by hopping from one branch to the other.

There were 300 colonies in the apiary; and, though our visit was in October, the honey had not been removed. There was scarcely a hive tight enough in the rear to keep the bees from working out that way. Mr. L. had once lost an apiary of 200 colonies by a brush fire, and we thought this apiary in a good shape to be swept away by the next fire. I learned the fact that bees, during such a destroying fire, scarcely ever leave the hives, but cling to the combs, and all heroically die together. Beyond this ranch the divide is reached, and a descent of 50 miles leads us out upon the Colorado Desert. There are some apiaries beyond Campo, but we completed our journey here and resolved to return. Had it not been so far we would have



LIVINGSTONE'S APIARY, CAMPO, CAL. HARBISON HIVES IN SAGE BUSHES.

In Campo we met Mr. T. Livingstone, one of the older bee-men of the country; and, though an old man, he was gloriously baching it. Hurrah for the bach! His 300 colonies of bees were out three miles on his ranch, and, getting our directions, we proceeded to the busy scene. We found a fine camping-place near a residence occupied by one of his hired men. This man was wedded to a large, buxom, red-headed woman. Two children occupied the most of her attention; and, from the discordant noises from the house, the spanking-machine was kept quite busy. We rejoiced again in the free and easy life of the bach, and the Rambler had to use much fatherly advice to keep Mr. Hansen from going to the door and shouting to the woman. "Well, who's a kicking?" Probably it would have been one of the tow-headed youngsters, as my sketch will show.

visited those mesquite-fields so often extolled. We found men in Campo who were very enthusiastic over the future of the Colorado Desert. Water from the Colorado River and from artesian wells will eventually make the desert the scene of busy agricultural pursuits.

It was our intention to return from Campo on a road further south, and on Mexican soil; but our friends all advised us not to do so without a passport. The festive Mexican might make us some trouble and expense; so we resolved to return to a point well down toward the coast before we crossed.

In all of the country between Del Zura and Campo there is but little fruit-raising, and bee-keepers have a restful time; and, owing to the mountainous country, there will probably never be much fruit raised here. In nearly every apiary we visited we noticed more or less dead

colonies, and more or less combs destroyed by moths; and it became an interesting speculation as to how much beeswax is thus wasted in California apiaries. The aggregate would astonish even a California bee-keeper. The nature of the country precludes it from ever being thickly settled, and consequently there are many lonely homes in places where the sight of a human being is rare. Homes are seen perch-



THE JOYS OF WEDDED BLISS.

ed upon lofty terraces, where there is no visible means of support, and where all of the water used by the occupants has to be drawn up on wagons, or packed up in honey-cans on horse-back. Many of these places are deserted after a time, the occupants evidently getting tired of trying to boom the country on their own hook.

There are many fine honey locations all along next to the Mexican border; but they are not occupied, for the proximity to the pilfering Mexicans would necessitate the owner's constant vigilance, and a constant residence there. Wherefore an apiary just on the border would not accord with the habits of the RAMBLER.

PARTHENOGENESIS QUESTIONED.

A DEVELOPMENT OF THE DZIERZON THEORY; INVESTIGATIONS OF THE GERMANS ON THE SUBJECT.

Years ago, Dzierzon startled the bee-keeping world by announcing that eggs were laid, and from them living bees were hatched, without any fertilization. Bitter was the conflict waged over it; but at last Dzierzon was left master of the field, and is to-day honored the world over, and the Dzierzon theory respected everywhere.

Now, however, there are signs that the question is to be reopened, the demand being made to relinquish the theory, or, at least, to modify it. At the great convention of German and Hungarian bee-keepers at Budapest, Mr. Edward Metzger announced his belief that the commonly accepted theory, that the spermatheca was simply a receptacle, was incorrect. In the first place, it seemed unreasonable that spermatozoa by the million could exist in a receptacle scarcely visible to the naked eye, and that they should in such a receptacle have so long a life-term as four or five years.

After microscopic investigations during the year, he was ready to affirm that the spermatheca of the queen is a gland, just as much as the testes of the drone, the ovary of the queen, or the poison-gland of the worker, each of which secretes its own peculiar product. In

the spermatheca of an unfecundated queen are secreted cells without a nucleus or germ. In mating, the queen receives cells with nuclei and spermatozoa. The latter increase in the spermatheca. Taking a queen in the height of egg-laying, and crushing the spermatheca, pieces of the inner secreting membrane will be found, from which the spermatozoa are developed, and to which they adhere like leeches. So the spermatozoa are developed before the cells are detached from the membrane.

Quite different is it with a queen which has ceased to lay. The spermatozoa are not so numerous, and show activity only when moistened with a weak solution of salt. In winter, even the salt solution fails to excite activity. This shows that the number of spermatozoa increases and diminishes at different times—a thing which could not be, on the supposition that the spermatheca is simply a receptacle to contain a constantly diminishing number of spermatozoa.

At a later date, Mr. C. Weygandt came to the support of Mr. Metzger by saying that he had examined the spermatheca of a laying worker, and found cells therein. Thus Mr. Metzger asserts that there is in every queen the means within herself of fecundating her eggs, so there is no such thing as parthenogenesis, or life without fecundation, the queen being a true hermaphrodite.

To put the matter in a few words, it seems to be something like this: In the spermatheca, before fecundation, there is material constantly engendered that serves to impregnate eggs, from which only drones hatch. On mating with the drone, spermatozoa are introduced, which serve as seed to multiply; and when eggs are impregnated by these, the female progeny is produced. But no egg produces a living result without being impregnated one way or the other.

The promulgation of this theory was received with applause at the convention, and the different journals have published it in full; but the editors fight shy of it. The *Bienen-Vater* comes out in strong terms against it, saying, among other things, that it is only a revival of the same theory advanced in 1881 by E. Pflueger. Gravenhorst makes no comment; and Lehzen, of the *Centralblatt*, refers the matter to the learned Prof. Leuckardt, of Leipzig, who says Mr. Metzger has given, instead of observations, conjectures which float in the air, "nothing but false suppositions—false conclusions."

It seems a little strange, that, after nearly half a century of investigations, the Dzierzon theory all the while becoming more firmly established, we should be asked to make a new departure. No doubt investigations will be renewed, and the truth established. The fact that the new theory is opposed does not prove it false, any more than it proved the Dzierzon theory false. Indeed, in a certain sense the new theory may be said to be a fuller development of, rather than destructive to, the Dzierzon theory. The venerable Dzierzon was present at the convention, and, although conservative, and prompt to oppose what he conceives to be error, he expressed no disapprobation, but rather gave his approval, by quoting, from his many years' experience, facts that seemed to favor the new theory. He had frequently had Italian queens mated with black drones that at first produced mixed workers, and afterward pure Italians.

At present the new theory seems to stand only as a possibility; but time proves all things. In actual practice it can hardly make a great deal of difference whether it be accepted or rejected. I can see where it might be of use in just one little item. I had at one time a queen which

laid well, but never an egg hatched. I think such cases have not been so very uncommon, and no explanation, I think, has ever been attempted, other than simply to say such things sometimes occur. Now, it will be very convenient, in case we are ready to admit Metzger's theory, to say that there was some trouble with the spermatheca, which prevented the impregnation of the eggs, hence none could hatch.

Marengo, Ill.

C. C. MILLER.

[A report similar to this was given on page 168, but as it is put in a new and different form, perhaps it will help to add interest to and throw light upon an already important subject.]

LADIES' CONVERSAZIONE.

MRS. AXTELL'S LETTER.

SOME INTERESTING FACTS IN REGARD TO WINTERING.

March 1st our bees had a fly for the first time since the middle of November, except two colonies that were in a warmer location than the rest. I expected some of the colonies would be dead, but all are alive. Some have lost a considerable number of bees lying dead in the bottom of hives, which necessitates cleaning the hives out. We bought four old box hives, large size, last fall, heavy 1st honey—60 lbs. or more, I should judge; black hybrid bees. We set them in one of our outdoor chaff hives and raised them up from the bottom-board on blocks; set the hive to the front of our hive and packed in chaff all around, except in front; put on a top-story band and filled in chaff on top. Those hives have scarcely any dead bees on the bottom-board. I look for them to come out strong. One of those has not had a fly since the middle of November. It stood in the shade when the others were flying. As there were scarcely any dead bees under the hive, and no bees flying, and strong last fall, I wondered what had become of the bees; so I pulled off the top and dug down into the top of the old box hives, and there I found lots of bees clear up in the top of old hive, warm and quiet and contented. They acted as if they did not feel the need of flying; after that, a dozen or so came out.

From the way those box hives packed in our big chaff hives have wintered, I feel strongly inclined to think such an arrangement can't be beat. The box hive was solid except on top, where were holes large enough for bees to come up into boxes, which were covered over with cloth, the holes being not more than two to four inches square.

But we can't handle bees in the box hives—can't manipulate them satisfactorily during the summer. We generally find holes through the combs so that the bees can pass to all parts of the hive readily, and the sheets of comb are taller than broad—about the shape of our Quinby frames, if set up on end, would make a hive.

I do not feel satisfied with our record of wintering out of doors in the past. It is too much trouble to build up weakly colonies ready for the spring harvest; and, if not strong then, bee-keeping doesn't pay.

We have no trouble to get the honey when there is honey in the flowers, with strong colonies; but I am sure our wintering outdoors is defective. We can winter in cellar with but little loss—almost perfectly when they have good stores; but it is too much trouble to bring bees home from an out-apiary, and too much danger attending it; and we must winter the out-apiary out of doors.

Last fall we tried a new arrangement. We made a box with only top and sides to fit over our six Quinby frames. The frames were raised up 1½ in. from the bottom, and packed with chaff at sides and top; but a fourth to a half of the colonies lay dead on the bottom-boards, while scarcely any were dead on the bottom-boards of box hives.

Ice was found in entrances of the hives twice during the winter after very cold spells; entrances were entirely sealed up. The ice was easily melted out by pouring in boiling water from a tea-kettle, pouring in water long enough to clean it all out and wash the frozen dead bees out a little away back into the hive. As the hives are all leaned forward, being four to six inches higher in the back, the water would all run out at the entrance. A little steam, I suppose, would rise, but I think not enough to injure the bees if the weather was not too cold. In very freezing weather I think I should not like to risk even that much steam. The hives being pitched forward was, I think, one reason of the entrances being frozen full of ice. Do you know whether others who did not lean their hives forward were troubled by the entrances freezing full of ice, where they used sealed or tight boards on top, instead of chaff. We had two hives packed with chaff on top; and even in one of those the entrance was full of ice once, with boards leaned over the fronts of all hives out of doors. I think more depends on having a good wintering hive than in the location. If they are warm, dry, and healthy, they don't seem to care whether they fly or not.

In regard to sweeping light snow around the hives to protect from the cold in the first part of winter and midwinter, I should like to know whether others think it best to do so, first leaning a board up in front of the hives to keep the snow out of entrance. It does seem to be a great protection, but it has its disadvantage by leaving a bank of snow around the hive when the snow has melted off elsewhere. When bees want to fly they drop down on to the snow and ice and cold water, and may perish unless straw is freely strewn around, which litters up the yard.

If sloping ground could always be had for the apiary, the water would then run off; but we must place our bees where they will be the most handy to work with, even upon level land. Ours is slightly slanting to the south, and yet the melting snow came near running into two entrances when melted, although all hives are sitting upon bricks.

I have seen it stated that bees rise from the snow after it is crusted over, but they don't fly when there is a crust on the snow. When warm enough for them to fly, the snow or ice is soft on top.

A GOOD IDEA.

We happened to hit upon that of raising up one side of our hives for cellar wintering. As our hives are clamped at the sides, instead of being nailed, they have almost too small entrances for cellar wintering, but large enough at all other times, unless it be in very hot weather, and then the front of the hives can, at one corner, be unclamped. Now, as we go from one hive to another and peep in, we find the bottom-board nearly clear of dead bees, although the frames are not lifted up. For three or four winters past we lifted the frames up 1½ inches; but we find that it is unnecessary, as it causes a great deal of work to lift them up in the fall and let them down again in the spring.

One hive got overlooked in being set up at the side, and bees had only their entrance to come out of the hive. I watched it all the fore part of winter, and the entrance kept open all right; so I got a little neglectful. Yesterday I looked after it and found the entrance entirely closed

and half of the bees dead. As it was at the furthest corner of the cellar from the door, I forgot to look after it the last few weeks.

A very bad stench arose from the hive as soon as opened, and the combs were wet and moldy, the dead bees wet and soft, probably caused by the excitement of the poor bees being shut in, and the vapor from their bodies being shut in the hive; while from hives that were open, the dampness passes off.

INVITING CHOLERA.

A few such hives, it seems to me, would invite cholera to our homes in warm winters; and even in cold winters the fumes must more or less penetrate our rooms above. I found the bees in that hive in much worse condition than are the dead bees upon the floor. I think the bees upon the floor should be swept up once in two or three weeks—by all means as soon as they begin to mold, which in some cellars would be sooner than in others. There are but very few dead bees upon the cellar floor this winter—the least I remember of ever seeing, showing that healthy stores make healthy bees.

Mrs. L. C. AXTELL.

Roseville, Ill., March 3, 1893.

[There is no doubt that it would be better for you, as well as for many others in equally cold climates, to winter bees in the cellar. Our own experience, as well as that of others, proves that it pays to give something more than the ordinary entrance for indoor wintering. For experiment, we tried a few colonies one winter, leaving the ordinary entrance, and neglecting them on purpose. The result was, as in the case mentioned by you, that nearly all died, and the inside of the hives was positively filthy, and the stench was unbearable. No wonder the poor bees died. By lifting the hive up from the bottom-board, or, as is more feasible with the most of us, taking the bottom-boards off entirely, and placing the hives four or five inches apart, one over the space between the two below, ample bottom ventilation is afforded.]

HALF-STORY BROOD-CHAMBERS

AS EXTRACTING-SUPERS.

In looking over your latest catalogue, Mr. Editor, I find that you now keep in stock half-story frames which you recommend for extracting-supers. Of course, they will also answer nicely for brood-frames; and your offering them for sale will enable any one of your customers, at little expense, to fit up a few half-stories and give them a trial as brood-chambers, according to my brief recommendation in GLEANINGS, No. 1, 1892. I have used them now for several seasons, as an auxiliary in the production of comb honey, and I can say that I am getting to be more and more pleased with them. Others also seem to take interest in them, and wish to know more about them, judging from a number of communications I received from different parties since I first wrote about the advantages of the half-story brood-chamber; and for this reason it might not be out of the way to enlarge a little on what I wrote then. But right here I want to caution every reader of only limited experience to try them on but a small scale at first.

The most essential feature of these brood-chambers is, that brood-frames and wide frames, which hold the sections, are of the same size; that is, both kinds may be used in the same chamber, and this feature will enable us sometimes to secure a few sections of nice honey when it would be nearly impossible in any other way. I believe it even possible to

realize a small surplus from the hard-maple bloom, for the yield from this source is often wonderful. Sometimes whole combs (usually drone combs) are built out and filled with brood and honey, as we have had occasion to notice in cases where a comb was left out by oversight. Of course, not all our colonies can be expected to be strong so early in the season, but perhaps a portion of those wintered in chaff will be. Then, again, the weather is not always favorable. But if it should be warm when the maple is in bloom, and we remove half of the brood-combs from the upper half-story, inserting at the same time one or two wide frames having the sections filled out with foundation, then closing up with a dummy to fill out space and to crowd the colony, we may have the pleasure of getting a taste of the fine maple honey.

During fruit-bloom this operation works admirably, as we have at this time more strong colonies; however, to make the thing a perfect success, metal excluders between brood and sections had better be used, although more often I have taken my chances without regret. If the weather is fair while apple-trees are in blossom, my other plan will also work well—that of taking away all the brood and giving the colony a half-story brood-chamber, with foundation-filled frames, upon which a super is placed, and sections also filled out with foundation. An excluder will be found necessary; and if a dummy is used at each side of each super, in place of a removed wide frame, all the better.

Quite a number of years ago I made up a lot of double-tier wide frames holding eight sections each. These I used for several years in my brood-chambers of full size (had no half-stories in use then); but it was difficult to get the lower tier of sections completed. For this and other reasons I discarded them finally. By the half-story method we can have brood below as well as on the side of the sections, and no trouble will be experienced—bees not entering sections so placed, no matter what strain of bees is kept.

It must be borne in mind, however, that, when we contract early in the season, we do it at the future numerical strength of the colony; and, as soon as possible, the removed brood-combs should be returned with a frame of some inferior honey from the year before, such as we are often enabled to obtain in the fall from buckwheat, asters, honey-dew, etc.; for our aim must be to have our bees ready for the basswood season about July 15.

My treatment of swarms, etc., I have given before, so I need not say any more on that subject.

In addition to the above I wish to say that these shallow half-story frames are very nicely adapted for nucleus hives; for a nucleus colony is in much better shape when on more but smaller frames than when on fewer but large frames.

For rearing and fertilizing queens in upper stories over excluders, *a la* Doolittle, these half-story chambers will also prove to be just the thing. I now use no others.

Naples, N. Y., March, 1893. F. GREINER.

[It seems to us, that, if we are going to have shallow extracting-supers, they should be made the same depth, and be identically the same as those used for holding single-tier $\frac{1}{4}$ sections. Accordingly, as there seemed to be a demand for shallow extracting-frames, we placed in our catalogue this year, not exactly half-depth frames, but frames that would go in the half-depth dovetailed body, or, what is the same thing, a dovetailed super. As there are thou-

sands who have these dovetailed supers, these shallow frames can be easily tried at no expense for hives.]

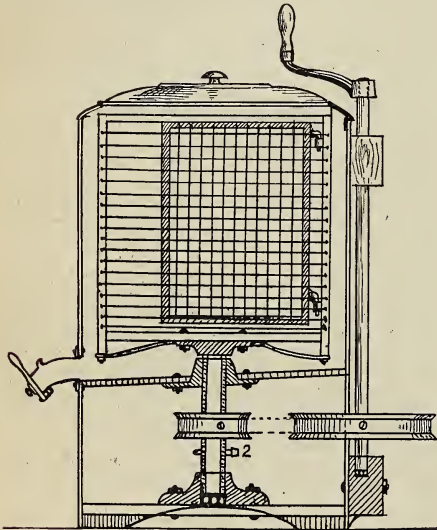
CARPENTER'S EXTRACTOR.

DISPENSING WITH CROSS-ARMS, GEARING, ETC.

Mr. Root:—Thinking that you did not see all of the devices for honey-extractors while you were in California, I send you a pencil-sketch of one that I made three years ago, and one that has done extra good work, for 140 stands of bees. I took $6\frac{1}{2}$ tons of honey the first year, $\frac{3}{4}$ of a ton the second year, and $3\frac{1}{2}$ tons the third year, and I do not see but that it might run a lifetime and do good work.

The first feature is, that the gearing, or belting, is underneath, doing away with a cross-bar over the top of the can that is in the way of taking out and putting in the combs. The second feature is, that the reel is wired horizontally, as you will see. The baskets are wired perpendicularly, and swing just as they do in the Cowan extractor.

The wires make square meshes when the basket swings against the wire on either side of the cage, keeping the wire meshes from clogging with thick honey and comb cuttings in hot weather, such as we usually get here in California.



SECTIONAL VIEW OF CARPENTER'S EXTRACTOR.

You will notice that the can at the top has a rim turned in to keep the spray of honey from flying over the top. It also has a lid to close the top of the extractor to keep out bees. As a faucet is hardly ever used here, it is well to have one to keep out bees when not in use for a short time. The baskets can be lifted out at any time, as they are just hung on hinges, like a gate. The reel can be lifted out just the same by taking out a pin at Fig. 2. The shaft is hollow where the pulley is fastened, and another inside shaft socketed in it is fastened to the reel. When the pin, 2, is taken out, the cage comes out easily, with the inside shaft to which the reel is fastened. The bottom of the extractor is made of wood, and is covered with iron, and slants toward the faucet, as you will see. There is a tin tube all around the box, that goes

through the bottom of the extractor. Next to the floor is a stout hard wooden piece that the lower box and shaft rests on.

This machine runs easily, and without any noise from cog-gearing, and you can hear the honey striking the can like rain. There is no shake to the cage, as you might suppose, no matter if there is only one comb put in at a time.

I don't want it understood that I am manufacturing extractors. I want those who have their hand in the business to make improvements whenever they are presented. If you can see any thing in this extractor that you can make use of, you are welcome to it. For my part I would use a two-frame extractor; but of late there are a few who would like larger ones. To such I would say that they don't need them, not even in California; but if they will have them, just make them and let them work as hard as they please.

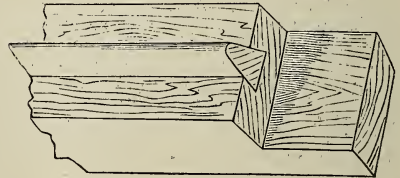
Los Angeles, Cal.

H. F. CARPENTER.

[There are several good features in the extractor. There have been some others made on the same plan before, we believe. Indeed, while we were settling upon the details of the Cowan we had thought of constructing a machine on the same principle; but we found, after careful consideration, that it would make a very bulky and heavy machine, to say nothing of the great cost. The freight on it in many cases would be much more than the selling price. After all, to one who is accustomed to it, the narrow cross-arm is no inconvenience and very much cheaper.]

A PROPOSED COMB-GUIDE.

The groove is made $\frac{1}{4}$ in. deep and $\frac{1}{8}$ wide at the bottom, and only $\frac{1}{8}$ wide at the top. The comb-guide is made about like a triangular-top-bar Simplicity frame, but the size is $\frac{1}{8} \times \frac{1}{8}$ wide, and just the length of the inside of the top-bar. The manner of putting in is to push it in from the end of the top-bar, and it will stay in its place with no more trouble. The groove is made with a grooved saw $\frac{1}{8}$ wide, and grooved in $\frac{1}{4}$ deep; then put on an 18-gauge rip-saw,



and by setting your miter-board so as to groove out $\frac{1}{8}$ at the bottom, and just at the edge at the top, and you have to pass it over the saw two times, first on one side, then on the end; turn your top-bar, and then groove the other side. This is quite a lot of work, but it will save the top-bar so we can have it $\frac{3}{8}$ thick, and will prevent burr-combs and have a comb-guide just the same.

Lake Mills, Ia.

J. G. RISLOW.

[It is possible to make a comb-guide, and attach it in the manner shown in the cut. The guide itself is easy to make, but the operation of cutting out the V-shaped groove is somewhat difficult and expensive—rather more, we imagine, than the bee-keepers of to-day would be willing to pay for. We have now changed our top-bars so they are practically $\frac{1}{8}$ thick, with a slight molded comb-guide, left, as it were, in relief on the bottom side of the bar.]

RECOLLECTIONS AND EXPERIENCES.

BY AN OLD BEE-JOURNAL EDITOR.

It is seldom possible for a beginner to decide upon his future course of action with regard to a pursuit. With us it was different; for, having followed bee-keeping for sixteen years, we had learned many things. First, we were satisfied that 50 to 75 colonies will stock up our locality, and probably many others, and that 50 colonies in one place, well attended, will produce more profit than three times that number in the same yard. Secondly, we had no desire to engage extensively in the business, therefore we did not have to plan our hives with reference to ease in moving upon wagons nor to curtail their size. Third, we realized that the great evil to contend with is loss in winter; and, from extensive observation, that none were more successful in winter than box hives. Fourth, we realized that the keystone to success is strong colonies, and that, if possible, a hive should be adapted to either cellar or outdoor wintering. Fifth, we remembered a lesson in natural philosophy, taught in our schooldays; to wit, that, while a long pendulum travels through the most space, the short one makes the greatest number of vibrations; hence in a bee-hive, to secure few pieces and short motions is desirable. In the hive, we assert that rapid manipulation depends upon lateral motion of the frames, and little occasion to lift them. Sixth, no care nor expense should be spared to secure good lumber and the most accurate workmanship that care and good machinery can produce. The various parts must be exactly of a size, and fit in any hive. Such hives should be well and frequently painted, to prevent warping and decay. For some time we have soaked the bottom-board, also chicken-coop material, in crude petroleum, and we are inclined to believe it the best as well as the cheapest wood-preserved that can be found. A few of our last hives are soaked in this material, and we shall observe their condition with interest.

A cube is the nearest practical approach to a sphere, in a bee-hive; and long ago Mr. Quinby gave, as the result of his observation, that a cube of 1728 inches meets all requirements, except that, in backward springs, the supply of honey is liable to exhaust. Of course, with frame hives this evil is not operative.

In line with this reasoning we adopted the new American size of frame, which is 12 x 12 inches inside, eight of them giving the desired size and shape to the brood-nest. Of course, we make them Hoffman style.

To meet our needs, the case to hold the frames is 24½ inches long, 13¼ inches wide, and 13 inches deep, inside measurement. The rabbets are cut deep enough to allow the tops of the frames to sink ⅛ inch below the top edge of the hive. Hand-holes are cut in all four sides, and the corners are gained together and cross-nailed to give strength. The center of the front is found, and 4½ inches to each side a 1½-inch hole is bored ¼ inch from the bottom edge. Thus the holes are 9 inches apart from center to center. Facing the hive, in the right-hand end, near the upper rear corner, we also bore a hole. The three holes are provided with buttons like those used by Mr. Hoffman.

We never admired a fast bottom-board. We make ours of 1½ inch strips, to which half-inch ceiling, cut in pieces 15 inches long, is nailed. This bottom is fastened to the hive with Van Deusen hive-clamps. The board side turned up leaves a space of ⅞ inch under the brood-frames. When turned the other side up, the space is 1¼ inches. As first placed, the followers at both sides of the frames close all aper-

tures; when reversed, the bees pass out freely through the 1½-inch spaces, so that, when bees are moved upon wagons, if the wire-cloth ends of the buttons cover the holes in the sides they occupy the entire case, and are not apt to get overheated nor to smother.

A division-board and two following boards are required with each hive, and fit loosely, yet sufficiently close to prevent any bees from getting past them. These are made of several narrow boards fastened together by strips nailed to their ends with a strip at the top that rests upon the rabbets, to prevent dropping down. By making them of several pieces, the size and shape are more uniform.

We trust your readers will note carefully the above description of case and bottom-board, for we have many points still to unfold. This hive holds from one to seventeen frames, according to the needs of the colony.

There are hundreds of large bee-keepers to whom our hive and management may not be well adapted; but there are also thousands who keep bees as a side issue, who at present secure only a tithe of the honey they should produce, and to whom we hope to impart some useful hints.

Soon after we began bee-keeping the second time, we found a good market for all the extracted honey we could produce; and although we prepared a box-honey arrangement for our hive, we have not harvested a pound of box honey.

For nine years, except this present season, from 19 to 25 colonies, spring count, we have secured a yearly average of five barrels, or 2500 pounds, of extracted honey. We are satisfied that the honey season has changed, and that not as much nectar is secreted now as 25 years ago; yet, with present average, we know of no branch on the farm that pays as large a profit for time and money invested as our bees.

Beginning with spring time, we will try briefly to outline our methods:

During winter we have from seven to nine frames in each brood-nest. When a day arrives warm enough for bees to fly well, they are overhauled. If many have died, and the cluster is small, combs are removed and the nest is contracted. Plenty of stores are assured to all; the bottom-boards are loosened and cleared, and several thicknesses of bran-sacks, old quilts, or carpets, are tucked over, and to the sides of the weakest. One entrance-button is closed, the other contracted to a single bee. The weather permitting, about once in ten days we examine all. At the approach of warm weather and fruit-blossoms, we often scrape and break the covers from capped honey, to induce brood-rearing.

About this time, or a little earlier, and often later, a tablespoonful of honey or syrup fed daily is the best investment that we ever made. This is quite a task, however, when the covers have to be removed, and daily allows the warmth of the cluster to be lowered. We shall try hard, and ask assistance from your readers, to contrive a feeder arranged with a tube and cork, so that feeding can be done from the outside, directly into the cluster. Duties performed easily are done cheerfully; otherwise they are often neglected.

When settled weather is assured, and the colonies get strong enough to make sure that no brood will be chilled and die, we begin our annual spreading. The entire top of the frames is exposed, to show clearly the size and strength of the colony. If six or more combs contain brood, we open the cluster and insert from one to three worker combs. This operation is performed occasionally at first, and more frequently as the season advances.

About the time we expect a flow of honey we remove one follower and select from seven to nine of the best worker combs, and put them with the queen in one end of the hive. In the front bottom corner, near the center, we lay a strip of tin two by six inches, bent thus—L. A perforated division-board is now inserted directly over this tin slip, and the remaining combs are placed against the perforated division. We now slide the hive forward nearly 1½ inches, and close the buttons. This provides a sort of portico, a complete entrance, a cool hive, and ready access for all bees shaken upon the ground. We have frequently known several quarts of bees, clustered upon the outside, to go back at once after the long entrance is provided. You conclude that this entrance gives advantage to robbers; but experience teaches otherwise. A robber dislikes very much to enter any crevice into which it can not see. The bees in the hive, in a state of excitement, cluster out of this crevice enough to make it impossible for a robber to pass unnoticed. Black bees are not so alert, but these we do not have. If a colony is getting robbed, a few sprigs of asparagus thrown upon the ground close to the front of the hive generally stops the operation.

At this point we must digress, and draw attention to some advantages of the long case and *genuine* Hoffman frame. Dr. Miller's language suits our idea so completely that we quote him as follows: "But, about that frame, Mr. Editor. First, I don't see why you should call it a 'Modified' Hoffman. Why, you've modified the Hoffman all out of it. 'The soul and essence of the Hoffman is the closing-together of the top-bars at the ends along with the closing of the end-bars at the top, so that no bee can enter from above to deposit propolis.'"

We add, that it is misleading, a misnomer, and will lead many to condemn the Hoffman frame who really never used one. When the top-bars are closed at the ends, a sheet of enamel cloth with a cushion or quilt over it makes all tight. A honey-board is now as far behind the times as a canal-boat is slower than an express train. Unless metal rabbets are used (and they are worse than useless) with Hoffman frames, the bees glue the narrow top-bars below, at the two sides, and at the ends. To loosen them is often a severe strain on the frames, the nerves of the bees, and those of the operator. With top-bars closed at the ends, the frames can be glued only where they come together, and at the point where they touch the hive, at both of which only a little propolis can be deposited, and but slight pressure is required to effect a separation. The warm or rarefied air ascends; and when the ends and tops are closed, no escape is provided; and with a tight sheet on the frames, we have a box hive with the further advantage of double walls for a distance. Burr-combs at top and sides are also quite dispensed with.

As regards lateral motion of the frames, if only for fall and spring convenience we could slide our combs, save time, and avoid much of the lifting. We would not shorten our case. Suppose the queen is to be found. Remove the enamel sheet; a glance at the cluster, to the experienced eye, will about reveal her whereabouts. One follower is drawn back, say four or six inches. The frames are separated at the point where she is supposed to be, and, six out of ten times, we see her tail wagging as she starts to go down. If not in that space, open the next where she is supposed to be. A little moving both ways from the center will surely reveal her before the bees become excited or even fill their sacs with honey.

Suppose you wish to spread the brood. Proceed as above, and you see at once the amount

and location of brood. It is just as easy to ascertain the quantity of stores. When preparing for winter, begin at the near end; glance at both sides of a comb; lift it an inch or two, and proceed through the hive; when done, shove the combs back to the starting-point.

When frames are to be closed together we generally bring them near each other, then a slight puff of smoke at each corner starts the bees, and the combs are closed up. Another way is to grasp the comb near the middle, or with both hands on the narrow part; lift it two or three inches and bring together, and lower in place. Just how to do these things is hard to describe. The quick-witted soon "catch on."

Smooth flagging-stones, about three feet square, bedded level, make very desirable stands for hives. We use a few, and hope soon to increase the number. With these, to mow the yard is an easy task. Unless a spirit-level is employed, few of us realize how many of our hives are not level; and the loss at all times, especially when foundation is to be drawn out, is not realized. When stones are not used, the Heddon stands, or similar skids, are necessary.

Before you read this, perhaps our hives will contain enough honey, and we can extract them. Canajoharie, N. Y. J. H. NELLIS.

TO REV. L. L. LANGSTROTH, FATHER OF MODERN APICULTURE.

AN OPEN LETTER BY THE PRESIDENT OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

Dear Sir:—I now take the liberty of presenting you, through the kindness of GLEANINGS, a picture of my apiary of 72 colonies, as I have learned, with a great degree of pleasure, through its columns, of your freedom from the old head troubles which have for so many years afflicted you; and I sincerely trust you may be spared a return of them in future.

The picture speaks for itself, in so far as you are concerned; and your observatory hive, made for me in 1863, with the name and position it occupies in the apiary, shows the respect and appreciation you are entitled to. By reference to your books you will also see that I purchased an Italian queen from you in October, 1864, and it is with pleasure I occasionally peruse all the correspondence (which I still retain in my possession) that passed between us, as well as read your old catalogues containing an illustration of the old extractors, or, as it is termed, "machine for emptying honey from the comb," a sample copy of which I, at your request, returned you on my reaching home from the meeting of the North American Bee-keepers' convention, held in Detroit in 1885, when you showed me a sample of *Apis dorsata*, preserved in alcohol; and, although that was the only occasion I have had the pleasure of meeting or seeing you, it nevertheless seems as if I had known you from my first perusal of your third edition of the "Hive and Honey-bee," in 1863, which is also still in the house.

In regard to the hive, I may say it has contained bees continuously ever since (nearly 30 years), and has had no repairing, except one new roof, and, of course, numerous coats of paint, during all those years. I still have the old-fashioned honey-board containing the 9 one-inch holes, Plate 8, Fig. 21, 3d Ed., and also a few of the glass honey-boxes used with the hive at that time. You will observe the hives are not only all numbered, but each one named after some prominent bee-keeper in the United States or Canada. You will also notice the outside cases are still on the hives (August), minus the packing, which is removed about

June 1; and although the system has advantages in regard to shade, freedom from confusion when the packing is removed, and many other minor points of importance to me, still I am not sure but there are other and more important benefits which would go toward abolishing them during the summer months, especially if working for comb honey. The bottoms of the cases are, of course, loose, thereby greatly facilitating the removal of them when necessary. For many reasons I do not desire a permanently chaff-packed hive. The portable apron, or alighting-board, is a greater convenience than if a fixture to the front of the case, for the reason that, in cold weather, it needs only to be raised a little more perpendicularly, and thus prevent the snow from lodging and closing the entrance entirely, while at the same time it also prevents the cold wind from entering, as well as preventing the sun's rays from enticing the bees outside in unfavorable weather.

If you look closely you will quite easily discern the box containing the queen-cage, in readiness for capturing her majesty on the issuing of a swarm; also a Miller feeder, escape-board, ladder, swarming-box, hive-cart, and solar wax-extractor, as well as other conveniences that ought to be found in a properly conducted apiary.

The figures in the foreground are as follows: First to the right is Belle, who assists in the household, and also in the apiary when necessary; second, my son Raeside (16); third, his mother; fourth, my sister; fifth, my mother; sixth, my daughter Mildred (13); seventh, remaining figures (lady) in front is Mrs. Gemmell's mother; eighth, the cowboy sitting in the chair is your humble servant—

F. A. GEMMELL.

Stratford, Ont.

JAKE SMITH'S LETTERS.

TAKING HONEY FROM THE PALLUS HIVE.



MR A. I. Gleanings—
dear Sir:—You know I told you about my pallus. My old woman diddnt beleave in it as much as me. She thot mabee I was took in. But I told her it wood be reel handy sumtime when I was gone & she had campenny, for her to take a nife & a plate and jist go to the pallus and help herself whenever she wanted to.

That peacified her considible.

Court sot in July, and I got a summons onto the jewry. I was gone a weak or nearly that. 1 day while I was gone, Misses Porter cum to spend the day, and Misses Barber cum with her. Misses Porter brot her nitten, and Misses Barber her sowin. Misses Porter is proper fond of bisket and hunny. My wifes a master hand to make bisket, but they was no hunny to go with it. Then it jist cum to her that she cood git sum in the pallus.

So along in the afternoon, when she had her

bisket all reddy to bake, she took a nife & plate and slipt out to the other side of the barn, where the pallus was. You see, I sot the pallus out back of the barn, because bees doant git along so well if you overstockt them. They was seven scaps of bees up near the house, and I was afraid they mite be overstockt if they was enny more there.

So she went out as brave as you please, but the rain had sweld the pallus dore, and it was sweld so she coodnt git the fasinin open. So she got a stone to pound the fasinin open. Pirty soon a small army of bees cum at her, lickity brindle. You know how they will, when they git mad. And they was mad, and no mistake.

She started on the run, the bees after her, a yellin and a screechin. One jabbed her in the chin, and another in the eye. In slappin at them she nocked off her bunnet, and her hair begun to fill up with bees. The wimmen heerd the racket in the house, and out they cum. But in they went when they seed what was up.



As quick as she got in the house, the bees staid out doors, accept what was sizzlin in her hair.

"Did they git mad?" says Misses Barber. "I doant know," says she, "but I know I did." Then they dug out the stings and put on salleratous. "I've heerd how smoke'll tame bees," says Mrs. Barber. "But I can't smoke," says she, "and, besides, I haint nothin to smoke. Fred Fraser left an old pipe when he wurked here, but I haint no tabacka." "I tell you what," says Misses Porter, "I can smoke enuff for that, and we can take catnip. It's more soothin like."

So they loaded up the pipe with catnip, and lit it, and started. But before she got in the 1st whiff, a bee give it to her rite onto the end of her nose, and she lit out, a pawin like sin. "Do they seem soothed?" says Misses Barber. She jist sed it to tant her, for she was a laffin fit to split. Jist then a cuple of bees took her in the face, and she stopt a laffin and began a clawin. "Do they seem soothed?" says Misses Porter.

Then they was bound they was a going to have that hunny enny how, so they bilt a fire of corn cobs all round the pallus, tied themselves all up soze a bee coodnt tuch em, and then pride the door open. And how much hunny do you think they got? not a blame bit. The pallus was jist as emty as the day it was sot there. But it was a poor year for bees ennyhow.

So they had to eat the bisket with butter and maple molasses. And I've eat worse things than that. And jist as they was a settin at the supper tabell, I cum home. I wisht you cood a seen them wimmen. They was a sight.

JAKE SMITH.

RACES, OR STRAINS OF BEES.

HEREDITY.

In connection with the breeding of live stock we find there is great stress laid upon the breed and the individual; and it is only too apparent that the farmer who pays the greatest attention to this subject, and follows out most closely the rules which he knows to be correct, is the one who is most likely to be successful in his operations. Too many bee-keepers, alas! pay but very little attention to either the breed or the individuals. We pursue a kind of haphazard system, which can only lead to very inferior results. Where would our famous dairy and beefing strains be to-day if their ancestors had been bred no more intelligently than we do our bees? They would be where the best strains of bees are yet—undeveloped. We have not as yet obtained the best results in bee-keeping. Why are we so drifting? First, perhaps, because we have not under control the selection of sire, as we have in stock such as cattle, horses, and sheep. Yet even here, when once the importance of the question is thoroughly brought to the attention of bee-keepers, more care will be observed in not permitting the drones from undesirable stocks to fly. Of course, we must all recognize that nature has done much for us in the selection. First in the royal combat, which takes place under natural conditions, in the majority of cases gives us the strongest and most active mother. Again, in the drones the same disposition we are apt to get when the queen is mated upon the wing. Yet the royal combat is more of an exception than it at one time was, and strength and activity, although highly prized, perhaps most important, may become additionally valuable with certain other characteristics added. We want, perhaps, only one trait of the black (or German) bee, and the characteristics which the majority of the Italians possess. The Carniolan bees, I believe, possess some valuable traits; yet among these traits are others which, I believe, render them unfit for the average bee-keeper. Yet, just as individual animals in breeds of cattle are the best in the herd (I have seen among the Durhams a bull sold at \$13,000, and another Durham worth barely \$30.00), so we doubtless have queens and drones whose value is proportionately far apart. It requires a somewhat educated eye and mind to find the difference in value in Durhams; and it requires still greater education to find the difference in bees. It requires careful work that, I feel satisfied, a station under the government could assist us greatly in. I have known, as many another one has known, two colonies side by side, of about the same numerical strength, secure very different results during the honey season. In fact, it is not too much to say that one colony has been known to give us twice the result of the other, and we have been unable to assign any reason—all has been speculation. But we might as well say there was no reason for one cow giving twice as much milk as the other, as to say there was no reason for one colony securing twice as much honey as the other.

I do not hesitate to say that the time will come when we will pay greater attention to the length of the tongue of the bee and the size of the load it carries. We shall have instruments by means of which we can measure the exact length of the tongue of the bee; and, again, by means of fine scales we can weigh bees as they leave the hive in quest of a load; and, again, weigh them as they return, thus finding the bees which have the longest tongue and carry the heaviest load. The rapidity of work can also be estimated. Such work will probably

never be undertaken first by private enterprise. The government must take this in hand first, and it could do much to help private individuals in their selection. Just as we in this country have a traveling dairy to go about to show the best methods of making butter, to advance the dairy interests, the time may come when it will be part of the work of an apiarist at an experiment station to select the best parents, the progeny of which shall be the material of the future, with which to carry on bee-keeping.

I have studied with interest Dr. Miller's article on heredity. It is a subject upon which the ignorant world about me (pardon me for the expression) considers me somewhat of a crank. I think the nurse-bees may have something to do with the traits of character of the bees they nurse, and still more the young bees they are with later in life. In the same way, although perhaps less, a child imbibes certain characteristics in its mother's milk. We know that anger, fright, passion, etc., will have such an effect upon the milk that it becomes poison; and if, taken at once, it will kill the infant, who would say that it may not have certain results, if in a less degree? But I have always looked upon example as more important in human training, as well as in the hive. First heredity, then example and surroundings, leaving out of the question divine power. The bee inherits certain traits—strength, activity, vigor—which lead it to carry out energetically that work for which it is best fitted; then the other bees influence their temperament to a certain extent. We know that, if one bee in a hive is angered, and emits the odor of poison, all the bees are angered; and, upon the same principle, it appears reasonable to suppose that, if young bees are brought forth in a hive, with those inclined to be angry, constant irritation in the hive will influence the young bees, and they too become angry; and, just as in man every time he allows himself to become angry it is still more easy to become angry the next, so with the bees; and, to a certain extent, such an influence rests on the hive for a time, but not permanently. I have again and again requeened vicious colonies—four last summer—with the result that, in time, their disposition has entirely changed.

I hope that your government will take hold of this question of selection in breeding. I had hoped ours would; but there is no use for ideas to be rusting. We should like to see our own country do best, but we are all interested in the advancement of bee-keeping, and would sooner see others advance our calling than not have it advanced at all.

R. F. HOLTERMANN.
Brantford, Ont., Can., Feb., 1893.

WARMING OUR DWELLINGS BY MEANS OF HOT WATER.

SOME OF THE POSSIBILITIES IN A LINE WITH THAT NEW GREENHOUSE, BY A. I. ROOT.

Since I have seen the workings, month after month, through the severe part of our winter weather, I have begun to realize more and more the importance of my discovery; and I wish to suggest to those who heat greenhouses by means of flues, that, by running water-pipes into the flue near the fire, and having it come out close to the chimney, they can, without any expense, except that of the piping in the first place, have overhead heating by the hot water, as well as bottom heat from the flues. The hot-water pipes right under the glass answer a very important purpose by melting the snow so as to let the heat and light of the sun get through very much oftener than with the glass structure with no overhead heating. While I

was pondering on the matter of using a similar apparatus for warming our dwellings, one of our subscribers made the following suggestion:

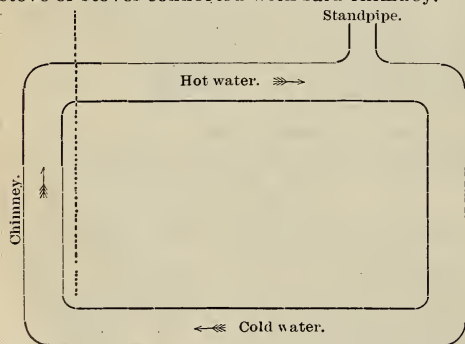
SAVING SOME OF THE HEAT THAT GOES UP THE CHIMNEY.

Now for invention. If "nine-tenths of the heat goes up the chimney, and only one-tenth is utilized for warming the room" (GLEANINGS, p. 31), can not this waste be utilized? It may be necessary that the gas from our stoves rise to the top of our houses while hot, in order to obtain a good draft; but then, why can it not be carried sideways in a flue in the peak of the house in order that it may there impart its heat to water which is to be carried down to the lower part of the house, there to impart its heat to the air of the room? I know that the hot water running down would not force up other water from which the heat had been absorbed. Probably there are many other difficulties in the way of the practical working of this scheme, but a saving of nine-tenths of all fuel used in heating dwellings is no mean saving. If the wind or a windmill could be made to cause a draft, then the gas from the stove would not have to rise to the top of the house while hot, but could be drawn off after the heat had been extracted.

B. D.

Eagle Point, Wis.

Friend D., you have struck upon a very important matter, without question. This surplus heat that goes up the chimney in almost every home can be utilized. Run your iron pipe into the bottom of the chimney, or, still better, into the stovepipe. Have it put up in such a way that it will come almost in the center of the draft. Then lead it out through the chimney at the point where you wish a room warmed. Make a coil of pipes, or let the water pass through any of the various cheap hot-water radiators now on the market; then carry it back to the point where it goes into the stovepipe or bottom of the chimney. Fix a standpipe at some convenient place, and the apparatus will run itself as long as you want it to run. The heat of the chimney will be sufficient to keep the pipes hot enough all night long, so there will be no danger of freezing and bursting, even if the fire does go out in the stove or stoves connected with said chimney.



ARRANGEMENT OF THE PIPES FOR HOT-WATER HEATING.

The diagram above will scarcely need explanation. Of course, the size of the pipe is greatly exaggerated in the diagram. The standpipe is simply to allow the water to contract and expand, as it does at different temperatures, and to allow the air that accumulates, to get out. If you live where there are town or city waterworks, this standpipe can be dispensed with, and a very small water-pipe may be let

into the heating-pipes at any point. In fact, my apparatus didn't work well with a standpipe; but when I attached it to the regular waterworks, letting on a pressure of 20 lbs. or more to the square inch, it worked perfectly. I have never had any trouble with air collecting in the pipes.

When it is attached to waterworks, just open the valve a little so as to let water enough into the coil of pipes, and you can then draw hot water from your heating pipes anywhere you choose—upstairs or downstairs. My impression is, that it is a very easy matter to arrange it so the water will keep circulating. All that is needed is, that the temperature be a little higher along some point of the circuit where the pipe is ascending; and letting it run up inside of the chimney will answer admirably. The water becomes warm when it first goes into the chimney, and continues to get warmer and warmer. This makes it lighter, and therefore the warm or hot water rises to the highest point in the piping. Then it parts with its heat and becomes cool and heavier, and therefore falls to be heated over again. You can warm in this way a single room, or even a small corner of any room. As long as there is any heat in the chimney, there will be heat in the corner. When once started, the thing goes itself for ever—that is, where there is any fire to furnish heat for the chimney. There is no need of any valve anywhere, unless it is to stop the hot-water circulation when your rooms are too warm. If the weather turns colder, and you want a little heat, just open the valve, and off starts the hot water again, doing its work. My impression is, that, by a considerable coil or series of pipes so arranged that the waste heat that passes up the chimney shall come through them we may be able to utilize almost every bit of this waste product from our fuel; and hot-water pipes give us the gentlest, cleanest, and quietest way of heating, of any thing that has ever been invented. I say "quietest;" for where buildings are warmed by steam, pretty soon there is sure to be bumping, or pounding and hissing. The hot water is silence itself. I would suggest that your water-pipes be of galvanized iron. In that case I do not believe that the water inside, and the smoke, soot, and tar outside—that is, where they pass through the chimney, would ever have any effect on them at all. Ordinary black iron pipe is a little cheaper in the outset; but rust and corrosion would in time hinder its working, so that the galvanized would probably be cheaper in the end.

On Sunday evening, Feb. 19, we had a tremendous gale of wind and snow. I had decided to turn on steam in case the weather turned very cold Sunday evening; but some way I did not get at it; and on Monday morning, when I found the thermometer 5° below zero, I feared that my plants were all frozen up and the water-pipes burst, for there had been no steam at all through the underground tile since Saturday night; and during Sunday night the wind blew a fearful gale from the north, with the low temperature I have mentioned. About 6 o'clock I started the little engine, but did not open the doors of the greenhouse until after breakfast. I was greatly fearful of the result; but every thing was all right, as it was Saturday night. The tomatoes and summer squashes looked as if it were the month of June. The water-pipes were doing their duty as usual. By the way, a friend suggests that my new model greenhouse must have been patterned after the ironclad ram Merrimac, of war-times memory. You will remember the Merrimac was covered with railroad iron, disposed in such a way that shot and shell would be deflected, and bound off without

doing any damage. Well, the new model greenhouse, it seems, bounded off the zero north wind in much the same way, and came through unharmed. If you have forgotten what it looks like, just turn back to page 26, Jan. 1.

DIVIDING VS. NATURAL SWARMING.

WHY MR. HEWES PREFERS TO PRACTICE THE FORMER IN CALIFORNIA.

In the early days of my bee-keeping experience, dividing (or artificial swarming) was all the rage among bee-keepers, and numerous were the discussions relating thereto in the bee-journals. To-day the subject is seldom mentioned in them, while the frequent allusions to the *how* of swarm management evinces that dividing is but little practiced by the best apirists in the Northern States.

At this moment, among the prominent apirists there who advocate dividing, I can recall but the names of the Dadants. Hutchinson in his otherwise most instructive book, "Advanced Bee-keeping," dismisses the subject in one short paragraph, in which he pronounces against it. In my experience, artificial swarming has proven much superior to natural swarming, and I can account for the divergence of opinion between myself and those who pronounce against it only by the differences of locality. As I understand the matter, in the Northern States the bees are released from their winter quarters about May 1st, and build up into populous colonies, and swarm at the beginning of or during the main honey-harvest. If this is the case, all well and good. The swarm will store an abundance of honey, while the hive which swarmed will gather some toward the end of the season, if it is prolonged for three or four weeks. But with us in California there is a moderate honey-flow for three months previous to the main honey-harvest, and most of the swarming takes place from two to four weeks before the opening of the season. The consequence is, when the honey comes the swarms are so depleted in numbers that they gather but little more than sufficient for their own needs, while the hive which swarmed with its young queen just beginning to lay, seems to busy itself with raising vast quantities of brood which will hatch at the close of the season, and be consumers instead of gatherers of honey. As a result of this early swarming, we have, at the opening of the honey-harvest, more hives with bees in them; but often the force which goes into the fields is very much smaller than that which went a month previous, when there was but little honey to gather.

Now, this three months of moderate honey-flow which occurs with us prior to the main harvest, while not conducive to our welfare if we let the bees swarm, is very advantageous if we divide, as, by making nuclei early in the season—latter part of March—we can build them up into strong stocks in time for them to gather much honey; and the old stocks, if they have been properly managed, will be ready for the harvest with a full force.

To sum up, division is best in those localities where a long season of moderate honey-flow precedes the main harvest; while natural swarming may be best in those localities where the harvest follows close upon the heels of spring. I emphasize "*may*," because I have found so many objections to natural swarming that I can not believe it is best anywhere. Principal among these objections is the serious loss which does occur from absconding swarms, and in the frequency with which the bee-keeper has to en-

gage in the unpleasant occupation of disentangling numerous swarms which have united in one cluster. The difficulty of hiving swarms, too, when they have alighted high in some tree is another objection to the natural method; and the compulsory quitting of more interesting work to do it is another, which sometimes amounts to a nuisance.

Besides getting more honey by dividing, we can, by raising our young queens from only our best stocks, greatly improve the quality of our bees. I practice pretty much all the methods of dividing which are laid down in the text-books, and some which are original. No one method is best under all circumstances. I find that the raising of good queens, and making increase, requires more skill, care, and judgment than any other branches of bee-keeping; at the same time, there is no other work in which I take so deep an interest. While under the manipulations of an expert the advantages of dividing are certain and positive, an unskilled hand can do almost as much to make his honey crop a poor one as will a failure of the flowers to bloom.

I heard of a Louisiana bee-keeper once who used flour-barrels for bee-hives, and who tried making artificial swarms by sawing the barrels into two parts. Of course, it was not a success, but some of the methods practiced by movable-frame bee keepers result no less disastrously.

In poor seasons, with us it is suicidal to attempt division, as some of our bee-men have found out. For two years I have not divided a colony, but am in hopes that I shall divide many of them the coming season.

WM. G. HEWES.

Newhall, Cal., Feb., 1893.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW WE FIX THE CANDY FOR FEEDING.

In the spring, lay a newspaper on the floor or table, and form a box by putting square sticks under the edges of the paper. Pour in the candy; when cool, break it in pieces and put it into your basket, and go to your apiary and pull back the quilt from over the cluster; give a piece according to your colony, with the paper side up, and you can tell when it is gone by the bees carrying the paper around the entrance—that is, if they can fly.

J. O. LEINART.

Clinton, Anderson Co., Tenn., Feb. 22.

[Bees carrying paper out at the entrance would certainly indicate when the food was used up. A rather bright idea.]

A GOOD REPORT.

I have sold nearly \$900 worth of honey the past winter, which I consider pretty good for an off year. My best returns was in 1889—nearly \$2300 from 250 colonies. I have never had an entire failure since I have been in the business. My location is only an ordinary one—white clover, Spanish needle, and heartsease being the only flowers producing honey in any quantity.

Nauvoo, Ill., Feb. 27.

E. J. BAXTER.

NOT A BEE-DISEASE, BUT OVERHEATED BROOD.

Friend Root:—Do you not think the trouble you mention in Aug. 15th GLEANINGS, last year, of dead brood that resembled foul brood, was overheated brood, as you say it happened in your hottest weather? Sometimes, I know,

nuclei standing in the sun, and not shaded, will have their combs melt down when there are but few old bees—not enough to ventilate the hive, especially if the entrance is small. We had some very hot days when it would seem all the bees that could be spared from feeding the brood and ventilating the hive were hanging out on the front, and under the hives.

Roseville, Ill.

MRS. L. C. AXTELL.

[It is quite possible that you are correct. The colonies affected were not very strong. We will investigate more closely next summer, should the peculiar malady reappear.]

THOSE IMPROVED HOFFMAN FRAMES PREFERRED TO ALL OTHERS.

I have used some of the improved Hoffman frames (those that have the beveled edge on one side of end-bar, and touch in no other place) during the past season. At present I prefer them to all others, and shall put in no others till I see some reason for a change. They are no more troubled with burr-combs than my common thick-top frames.

CLARK A. MONTAGUE.

Archie, Grand Traverse Co., Mich., Feb. 22.

HONEY ON A STICK, IN INDIA.

In conversation with Rev. D. H. Drake, who has been nine years a missionary in India, Madras being his headquarters, I learned some interesting facts in regard to some honey he found there. The natives brought it in for sale in considerable quantities. It was of a delicate straw color, and of fine flavor, but it was stored on the twigs of trees or bushes about $\frac{3}{4}$ of an inch in diameter, and the honey which encircled the twig was about 2 inches in diameter, and from six to eight inches in length, each stick being apparently a perfect or finished comb. Mr. Drake did not learn any thing in regard to the bees which produced this honey, but it was stored in such a peculiar manner it must have been produced by a different kind of bees from any of ours. This honey was sold in that shape only in the vicinity of its production. It was at Udagerri Hill, Nellore District, India. It is in Madras Presidency, about 150 miles N. W. of Madras, at an elevation of 2700 feet, and the honey was eaten in May and June. Mr. Drake thinks that there is no doubt that further information in regard to those bees can be obtained by writing to a missionary who is located there, and would be glad to interest himself in the matter if requested to do so. His name is W. R. Manley, and address as above.

J. L. HUBBARD.

Battle Creek, Mich., Mar. 2.

[Honey on a stick is a new thing to us. It seems strange that we have never heard of it before. Is there not some mistake? Will some of our missionary friends in the vicinity please enlighten us? We should like particularly to hear from Mr. Manley.]

OUR GOVERNMENT DISTILLERIES.

When any man or company wants to build a distillery, the government furnishes a plan; and when the distillery is ready to start, a government official unlocks the door; and when it closes for the day, he locks it up; and these locks on the doors and furnaces, and other parts of the distillery, bear the letters "U. S.;" and without such governmental supervision no distillery can run in the United States; and on every gallon of distilled spirits the government's share is at least four times the cost. Then the government builds warehouses at the expense of the tax-payers, to store the product of these

distilleries in, to be kept to enhance their cash value.

VOLNEY WHITE.

Findlay's Lake, N. Y., Dec. 23.

[In our issue for Nov. 1, 1892, page 811, in speaking of government distilleries, I asked the readers of GLEANINGS to set me right if any of the statements I had copied in regard to such distilleries were incorrect. A mass of correspondence came promptly, saying there was no exaggeration in the matter. Only one letter, however, was received, so far as I remember, saying that it was stated unfairly. This one letter contained the statement, "It is just as fair and just as truthful to say that the government runs your market-garden." Now, may God help me to avoid getting into any argument or controversy; but there is this difference: The government has never yet even volunteered to furnish any plans for the building of our factory or greenhouses. Perhaps if it had, we should not have made so many stupid blunders as we have made in years gone by. Neither has any government official ever looked us over, to say nothing about a lock on the doors. We have had liberty the most unlimited, to fix things after our own fancy. A tax-collector has, it is true, looked us over once a year; but he was so very accommodating and easy that I sometimes joked him about it; but he evidently had a good opinion of our honesty and integrity. Now, the statement in the letter from friend White troubles my mental and spiritual digestion. I was just thinking that it seemed as if I had eaten some green plums, and swallowed them, *stones and all*. I will tell you what *makes* me feel uneasy. When I looked over that very neat and pretty distillery—that is, if a distillery can be pretty—in Mogadore, Summit Co., O., only thirty miles from where I sit writing, I was astonished at the beauty of its buildings and its apparatus. I used to be something of a chemist, you know, and I think I can appreciate a handsome chemical laboratory. The beauty of the buildings, and the general tidiness of the whole affair, made me think at once of the work of some great corporation, not only with plenty of money, but with large experience. The apparatus seemed to have been devised and put up by some company that was acquainted with all modern improvements and progress in the art of distilling; and it was in a little humble backwoods town too. I am much more at home with nice chemical and mechanical apparatus than I am in the realm of politics. I confess that this whole matter of government management and government tax is out of my line; and, if you will excuse me, I will say, too, that government distilleries are out of *Uncle Samuel's* line of business. I *am* small, and unlearned in the matter of politics and government; but I am a citizen of the United States, and as such I protest. If my influence counts for any thing at all in this great nation of people, I should like to put my name down to a *vehement* protest against this whole thing. I should just like to see how long a string of names could be got up, to a demand that it be stopped. Once more: If friend White and myself have made a mistake, and got the thing wrong; if it is *not* true that the United States is showing our people how to build nice distilleries, warehouses, etc., and taking a share of the profits that amounts to *four times* the first cost of the liquor, then do, for Heaven's sake, tell us what *is* true. I do know that the beautiful distillery is over there in that little town in an adjoining county. How did it come there? As a *tax-payer*, I vehemently protest against having one copper of the money I pay in taxes being applied to the building up of such industries.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE FARMER'S LAMENT.

A friend sends us the following clipping from a newspaper:

I'm sick and tired of hoeing, ditching,
And milking cows with tails a switching
In face and eyes;
There's little pay and lots of labor
In raising corn or taters, neighbor,
And fighting flies.

The farm and necessary fixtures,
To me are not such pleasant pictures—
Scythe, fork, and rake;
To tell the truth, I do not love them,
And, soaring far to realms above them,
My leave would take.

Oh for a season of refreshing!
Oh for a crop that's worth the threshing!
The farmers pray,
Until one's ready for his coffin;
Their dying words we hear so often:
"Farming doesn't pay!"

Well, I do not quite agree with the farmer who uttered the above lament. I am not tired of hoeing and ditching, at all; but modern progress has made the hoe to be almost too slow to be used very much. Our best cultivators, and Breed's weeder, have rather thrown it into the background. Of course, there is lots of labor with the corn and "taters;" but just now the pay is pretty good, especially on the "taters;" and the scythe, fork, and rake are the very things I do love; but the scythe, like the hoe, is rather too slow. There is one line in the last verse that rather redeems the poor old farmer, after all. If he could have a crop "*worth* the threshing," he might brighten up. And now, dear friend, pray do not get "ready" for that "coffin" just yet. I am sure there is lots of business that will pay tiptop, just before you. Why, just think of it! Our Medina people wanted some parsnips. We usually dig them almost any month in winter, here in Ohio; but we have had a freeze-up ever since just before Christmas; and those we put into the cellar were gone long ago; so we sent to Cleveland for a barrel, and they went off like hot cakes, at 5 cents a pound. The barrel cost us \$3.00. Neighbor H. said that, if any one would guarantee him a market, he would raise parsnips for 10 cts. a bushel. I am not sure that I could do that; but I could, with very little trouble, raise an awful lot of them on that creek-bottom ground; and if parsnips, carrots, turnips, and roots of every kind, are put into the cellar, and covered with clean sand, they will keep almost as fresh and nice as they were the day they were dug, all winter long. Of course, the temperature of the cellar needs to be so near freezing that they will not sprout. Perhaps you say that raising root crops is not farming; but I insist that it is. If the towns around you won't give 25 cts. a bushel for your roots, they are worth almost if not quite that price, to feed out to almost any kind of stock. Just try your horses and cattle with carrots and parsnips in the spring, and see what they think of them. Then if you should have a winter like this, and everybody were ready to buy your crop at a dollar a bushel, or 5 cts. a pound at retail, how would *that* suit you, Mr. Farmer? It seems to me we have got a "season of refreshing" right here now, in a good many commodities; and there will always be a good market for nice stuff carefully put away, until there comes a season when somebody wants to buy.

USELESS DOGS AND HOT-BED SASH.

For years I have been paying a pretty heavy bill of expense in consequence of breakage of glass in our hot-bed and cold-frame sashes, by dogs walking over them. Of course, I mean dogs heavy enough to break a pane of glass. With the slatted glass sash, which I think promises to be of great use at certain times of the year, the dogs pretty nearly break up the business. Even a small dog stepping on those two-inch slats would break them. It is not alone the hot-beds either, for I have had big dogs walk up the sides of my greenhouse where the glass came over near the ground. When I remonstrated with the owners of the dogs, they tried to evade the question by asking what in the world the dogs wanted by walking on my sash. The explanation is this: Many dogs in winter time are not properly fed. In fact, a great many of them show by their looks and actions that they are half starved. Well, the rich compost we employ in our hot-beds, and even in our highly fertilized cold-frames, gives off an odor that must be in some manner savory to the hungry dogs, so they go nosing about the plant-beds and walking over the glass, especially when there is a little snow on the surface. If I were the only sufferer, perhaps the matter would not be worth bringing up; but I have heard several complaints from different localities. The letter below is right to the point:

Mr. Root:

Please send at once 1000 very earliest Jersey Wakefield cabbage-plants, 1000 White Plume celery. I have had bad luck with my first early plants owing to dogs breaking glass in my hot-bed at night and letting them freeze, so I order from you, as I believe you will send me none but A 1 plants; and I will transplant under glass as soon as they get here. S. H. BEAVER.

Seward, Neb., March 2.

You may say, "Why not get a gun and shoot the dogs?" Here in Ohio, and I presume likely in other States, any dog prowling around without his master may be shot according to law. But you know this is not a pleasant thing to do. The masters are often in the habit of going along the sidewalk while the dog is galloping through the adjacent fields. It seems to me the town council, or some official board, should take the matter in hand, and, for the general good of the community, thin off the useless dogs. Of course, the owners should be first notified; then if they do not take care of their dogs, they will have no reason to complain. There are good and sufficient reasons why a market-gardener should not go to shooting his neighbors' dogs. The old adage says, "People who live in glass houses should not throw stones." A spiteful neighbor might come in the night and smash more glass than his dog would in a lifetime. Besides, that is not the way to do business with neighbors, anyhow—at least, the teachings of Our Homes and Neighbors in this journal are not along in that line. I suppose, to sum it up, the question presents itself something like this: Which is of more importance to the commonwealth—intensive gardening or the dog business?

ONION-SETS—HOW TO RAISE THEM.

I suppose you have noticed that the prices of onion-sets seem to be running higher and higher; and almost every spring—at least for some years back—the demand has been greater than the supply, even with the tremendously high prices. Why, Peter Henderson, in his last retail catalogue, quotes them at \$2.50 a peck, red, yellow, and white; potato-onions same price. I have been thinking, season after season, that somebody would raise so many that

we should very soon come back to old prices—50 or 75 cts. a peck; but it does not seem to come. The Landreths raise them by the carload, and quote prices by the carload; but they are now “sold out.” I presume I have bought onion-sets from almost all large dealers who advertise them; but yet, with the *exceedingly* high prices, the quality has not been what it ought to be. The matter has been discussed in these pages already. Peter Henderson says they put theirs through a sieve or screen that takes out all more than $\frac{3}{4}$ inch in diameter. Other seedsmen, evidently, do not do this. You see, if we pay for onion-sets, and get them an inch in diameter, or more, even though we buy a bushel of sets we do not get a great number of onions. Another thing, so many have onion-sets that send up a seedstalk, I had about become disgusted, and was thinking of using onion-plants instead. In a recent number of the *American Garden*, they asked a great many leading gardeners about the new onion culture; and one or more of them say they can get *earlier* onions by planting sets. Well, if he had just the right kind of sets, perhaps he could. I think, however, it would depend on how large and strong his onion-plants were.

Well, why don't more people raise sets? And, by the way, there is considerable inquiry as to how to do it. Landreth says it wants a particular kind of seed; and they advertise seed specially grown for raising sets. Now, with all this preamble I have something pleasant to tell you.

When spring opened, and we had not any sets at all, and I didn't know where we could buy any, one of the boys who works for me said he had about a bushel.

“Why, Fred, where did you get a bushel of onion-sets?”

“I grew 'em.”

“You grew them? Who told you how?”

“Why, nobody told me. I just planted the seed in the garden, and they grew.”

Now, Fred had seen me *try* to raise onion-sets year after year; and during the past wet seasons he had seen me make more failures than successes; therefore, when he brought me a peck basket full as a sample I was a good deal astonished. They were the nicest onion-sets I ever saw in my life. They were from the size of a bean to half an inch in diameter—some, perhaps, a little more. They were firm, solid, well-ripened onions. There were not any thick necks nor any sprouts. They looked as if they expected to stay just as they were until somebody planted them in the ground. As we have had trouble in making onion-sets keep, you can imagine how pleased I looked when I saw his product.

“Fred, I will give you \$5.00 a bushel for all the onion-sets you have got just like these, if you will tell me all about how you raised them.”

He laughingly replied that there was not any thing to tell. You see, \$5.00 is just exactly what we advertise them for in our catalogue; but I wanted some nice sets to send out to our customers who ordered a single quart by mail, and I think that all who receive a pint or a quart of these will feel they have got the worth of their money. At 20 cts. a quart there was not much margin left for me; but I got my pay in having the fun of sending *good* ones. Fred's plan was simply this:

Some time in May they made up beds in the garden 3 feet wide. The ground was not rich, because they had not much manure to make it rich. The onion seeds were sown broadcast, and raked in. It was sown so evenly and thickly that the onions could not grow big, even if they tried. The bushel was on a bed 3 x 18 feet.

“But, Fred, if you sowed them broadcast on

your garden soil, it must have been a tremendous task to do the weeding; for if you waited till May, the weeds must have been up a little ahead of the onions.”

“Oh! it was something of a job to pull the weeds out; but then, you see my sister—*she* did the weeding.”

“Good for you, Fred. Such a sister as that is worth having. Of course, you gave her a part of the money?”

He nodded his head.

“Now, Fred, where did you get Yellow Danvers onion seed that produced such nice onion-sets as these? Was it some of the seed I sold you?”

He hung down his head a little, and replied, “No, I did not get the seed of you. I bought it of H. W. Buckbee, Rockford, Ill.”

“But, Fred, why did you send away off to Rockford when we were selling onion seed right here—piles of it every day?”

A shade of embarrassment came over his honest face; but when I encouraged him to go on he replied, “Why, Mr. Root, Mr. Buckbee sent it postpaid by mail for 90 cts. per lb., when your price was \$1.75.”

I was astounded—that nice onion seed for growing sets, at 90 cts. per lb.! I asked him to bring the catalogue, and he did. In it I noticed that Mr. Buckbee says all his onion seed is grown by himself. This season he charges \$1.75 per lb., because the crop is short; and if he blames me for putting him in the papers, I reply that it is just what he deserves. If he is going to raise onion seed that will produce such sets as that, and then sell it at 90 cts. per lb., not only should he be in the papers, but people should know all about it. Don't you think so?

A CORRECTION—\$4.30 INSTEAD OF \$43.00.

On page 182, where you quote from my letter, there is a little mistake. Instead of being \$43.00 it should be \$4.30. Of course, it is my mistake. I wrote hastily.

P. O. THOMPSON.

Sidney, O., Mar. 7.

[Friend T., we are very sorry to have the wind taken out of our astounding story; but notwithstanding, we want to be right. Henry Clay once said he would rather be right than to be president of the United States; and we hope the readers of GLEANINGS, especially those who make garden, are as loyal to the truth as was “the sage of Ashland.”]

OURSELVES AND OUR NEIGHBORS.

Why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?—MATT. 7: 3.

A few days ago our daughter Constance (“Blue Eyes”) sent me a particular invitation to come out to Oberlin, where she is attending school, in time to attend a musical rehearsal to be held in one of the large churches in that college town, so particularly famed far and wide for churches, schools, and learning. I believe the Roots are fond of music. Most of them play on some instrument, and I believe they all sing, or try to sing; at least, they sing in prayer-meeting and Sunday-school, and are supposed to have at least an average ear for music. Carrie, our next younger daughter, accompanied me. The church was filled to overflowing. Constance remarked that, as the program was all classical music, she was afraid it might not interest me—at least, a good deal of it.

The first piece was a solo by a gentleman. He was German, and sang in the German lan-

guage. A lady played an accompaniment on the piano. I did not enjoy the piece very much. In fact, I was a little provoked to think that a celebrated singer should come before an American audience and sing in German. But music, you know, is the universal language, and so I expected that I could appreciate the music, if not the sense expressed in the words. To my surprise, however, I did not "catch on" to the music, much if any better than I did the German words. In fact, I felt a good deal inclined to criticise our brother, and to say to myself there was not any music about it, and to suggest that he was putting on airs, etc. Well, when that great crowd of men and women, boys and girls, encored him to such an extent that they almost insisted on his coming back and singing again, I began to get vexed with the audience, and to say to myself, "This is a new and fashionable sort of craze, and they all pretend they are pleased with such a senseless performance." Then I began to look around on the audience, and to study their faces. I think I have learned to distinguish an intelligent person by his looks—at least, to some extent. I was perplexed. The audience was composed mostly of young people; and a finer, brighter, and more intelligent lot of faces I think I never saw. Quite a number of them were Germans; and the real honest delight that shone forth from those German faces as they clapped their hands (as only Germans can clap), indicated beyond question that there was downright honest energy and enthusiasm, and that it was probably myself that was lacking, and not the singer and the audience.

Then a German organist came on the stage. He was said to be one of the finest players in America; but I was disappointed again. He threw his whole soul and all the energy of his being into the performance. Not only his hands and face and the motions of his head, but his feet and his *knees* also, took part, and his body seemed full of inspiration; but it was all an unknown tongue to me, even though it did come from the organ. Many of the passages were difficult, without question. Once or twice I could catch a little glimpse of melody; but just as soon as I began to hope it would continue in that strain, or repeat it with some variation, both time and tune seemed to be absolutely jumbled up; and before I knew it I was working hard to scrape up charity, as in the former case, to have faith that he and the audience *knew* what he was doing. In this case such a storm of applause burst forth from that great audience, and that storm was kept up for quite a long interval (for they seemed determined to call him back), that I was completely dumbfounded.

After this, a lady came on the program—a distinguished pianist. I believe that, since I was of a very tender age—say three or four years old—I could understand women better than men. The sight of a cultured and intelligent woman is always pleasant to me, even if she does not sing nor speak; and I felt sure I should be able to understand at least a little of the next piece on the program. The woman was beautiful, and she looked smart and bright; but I began to be troubled almost at once, for she simply struck the instrument at long intervals; and the tones that it gave forth were not pleasant either. They were, to me, meaningless. I concluded that it was, perhaps, a sort of preamble that did not mean any thing particularly to anybody, and hoped she would get "down to business" after a while, and *play* something. It was all pretty much like the first, however. Once or twice there were a few chords, or perhaps a bar or two, that, by a stretch of the imagination, I could think might

have some melody about them, if one understood the matter, and was familiar with this (to me) unknown language; but just as soon as I began to feel hopeful that I was "catching on" just a little, she just knocked it all over by getting shockingly out of time and out of tune. I remember of asking myself whether it were possible that *anybody* could beat time for such music; and I mentally decided that it must be a sort of music where *time* was pitched out of the window; and I was greatly tempted to say to myself that I more than half believed the *tune* was pitched out of the window also. And what did Carrie say to all this classical music? Why, she enjoyed it hugely. She admitted, however, when questioned closely, that some of the passages were beyond her comprehension and training; and she rather thought that one who understood it could beat time to all the music that evening. Shortly afterward I met a professional teacher who has for years drilled the juveniles in our Medina schools in music. I have mentioned him before in these pages. In reply to my inquiry he said, "Why, to be sure one could beat time to every piece of music that was played during the evening. It was all right—every bit of it. The only trouble is, you were unfamiliar with it."

During the latter part of the performance the Oberlin Glee Club sang some pieces. The harmony and beauty of so many trained voices was plain enough; but the pieces were all something I had never heard before, and therefore I could not enjoy them *very* much. Oh how I *did* long for just one strain of Old Hundred, or something from the Moody and Sankey Hymns;—just a little glimpse, if nothing more, to remind me of something I could recognize. I did not get it, however, and so the great concert, that seemed to awaken such enthusiasm among hundreds of educated and intelligent people, was to me almost a blank. I fell to wondering once or twice whether it were not my duty as a Christian to applaud just a little with the rest; but, even though Paul did say, "I am become all things to all men," I did not feel that I was called upon to applaud something that I did not understand. I could express my satisfaction at the performance of the glee club; and when the Oberlin Football Club came on to the stage with their playing uniforms, and sang something, the words of which were full of comical pleasantry, I felt that I could applaud then, even if the music were still unfamiliar.

Now, friends, why do you suppose I tell all of this? Why have I needlessly "trotted out" my ignorance and my lack of musical training, or ear for music? What is the point, any way? Why, it is this:

I did not enjoy the concert in *one* sense; but in another sense I *did* enjoy it, because it seemed to me as though God in his providence was teaching me a great lesson. You remember the time when Peter was taught that great object-lesson by a vision that came down from heaven. At first he rejected it, and said, "Not so, Lord." But the angel replied, "What God hath cleansed, call not thou common." Suppose that, in my stupidity, I had said to myself, "These people on the stage are all a pack of idiots. They *know* there is not any sense nor music in all this folderol;" and suppose I had, furthermore, said that that great audience of people, mostly scholars, many of them graduates, probably, were *also* a pack of idiots, and that they *pretended* they were pleased just because it was a new thing, and *fashionable*." I was greatly tempted to say something of this sort, but, thank God, a little streak of common sense was left to me—enough to overcome my preposterous egotism. Grace enough was given me to say, "If there is any idiot at all in this whole assembly,

it is *A. I. Root* and nobody else." You see, I was called out of my regular beat, a little out of my line of work. I was in a new atmosphere, and among a class of people with whom I had had comparatively little acquaintance; and, dear friends, with all the great lines of progress in science and art that now surround us, we run into this thing quite frequently. Oh how my heart has been pained to see uneducated people criticise and sneer at those whom they might chance to meet, with education and intelligence: yes, and my heart has been sadly pained to see hard-working poor people look upon those who were more fortunate than themselves, in just the way I was tempted to look upon and judge those I saw at that musical rehearsal. Several of my friends suggested that I could easily cultivate a taste for classical music; that, if I were to take time and pains, I could very soon see a higher order of melody in what I was tempted to call a senseless performance than I had ever got a glimpse of before. Perhaps this is true; but even if it were not, we are not all alike. Individuals in the same family differ widely. I have told you before that I am partially color-blind. When a carriage full of people look out upon a cherry-tree, as we are riding by, and all utter exclamations of surprise because of the beautiful red cherries lurking among the green leaves, suppose that, because I can not see any red cherries at all, I should declare there are none. What sort of person would I be? And yet I have sometimes been almost vexed because my own children, two or three years old, could see cherries where I saw none.

In this matter of *capital and labor*, I suspect many of the troubles and want of charity come along in the line of our text. Somebody, or some class of people (it is a good deal sadder to see a *lot* of people going wrong than simply one individual), who do not see nor understand some new development with merchandise and factories, etc., will declare it is a plan to cheat and defraud the public. They look on it from *their* standpoint. They not only lack charity, but they lack intelligence and education, and they push ahead, insisting that they are the only *honest* people in the world. The ones they censure so severely, perhaps, are kind enough to try to explain; but no explanations will be received; and this way of severely judging others, often results in mobs, riots, and bloodshed. May God help us!

Again, good people lament that their boys—aye, and girls too—will not stay on the farm, when the fault is entirely their own. T. B. Terry, or somebody else, tells of a young farmer whose father was well-to-do, who had determined to become a telegraph operator. His father and mother urged him to stay on the farm, telling him of his future prospects; but the boy could not be turned. Finally the father asked the advice of a mutual friend. The result of the advice was, that the next morning the old farmer took out a roll of bills and handed it to the boy, and said: "Look here, John. Before we begin our spring's work we want another good stout horse. Now, I believe you can buy a horse just as well as I can, and may be better too. You probably know where the good horses are. Suppose you try your hand at it." The boy took the money mechanically, but stared at his father in open-mouthed wonder. What in the world had happened, or come over the old gentleman to make him do such an unheard-of thing? Off went the boy, feeling several inches taller to think that he was finally, for the *first time in his life*, intrusted with money, and sent off to do *business* without even having his father along. They did not get him for a telegraph operator at all, and in a

little time he showed the old gentleman that he could beat him right along in modern farming. Of course, he made some blunders, and had to learn by experience.

The *Roots* are given to hobbies. Your humble servant has ridden more hobbies, and pushed them day and night, up hill and down, summer and winter, perhaps, than any reader of *GLEANINGS*; and when he is astride one of these hobbies, he can not very well *see* any thing else. Why, just a few months ago I refused to look at a wheel, and refused to believe I had strength or time to ride one. I went around grunting with my aches and pains, and would hardly listen to Ernest, nor even *consider* the matter. Yes, I remember, too, when I thought this wheel craze was a big nuisance—they hadn't any business on the sidewalks; and I don't know but I almost thought (without thinking or considering the matter) that they had no business *anywhere*. What a stupid blunder I was making! Well, the *young Roots* are given to hobbies. Just now Huber is bent on making maple sugar from three trees that are down near the toolhouse. He has borrowed a kettle, and is preparing to hang it on a pole. He has also collected rubbish from all over the neighborhood, and stood it up in the sun where it will dry. I told him the sugar would cost him a dollar a pound, and that it would not be good, even then. But, notwithstanding, that is just the principal thing he wants to do. Miss Constance, who invited me to come to Oberlin, never showed any particular tendency to get crazy after any thing until she was almost twenty years old. I felt sure it would come sooner or later, and was watching to see what direction her enthusiasm would take. Well, she has found her mission—I believe that is what she calls it; and she is just as certain as I was, when I went chasing after hobbies, that she will follow it "all the days of her life." You may conjecture that it is music. Well, it is *one* kind of music. If it had been vocal music or a piano, or even a guitar, we might have been at least tolerably reconciled. But, what do you think? Why, her whole heart and soul are absorbed in taking lessons on the *violin*! We thought it would last only a few weeks; but it has lasted almost a year, and she thinks she has as yet only a glimpse of the wonderful possibilities beyond. First, she took lessons of the best talent here in Medina; now she has taken several terms of the leading professor on the violin in Oberlin. Some of you who are behind the times, like myself, may inquire, "Why, is she going to devote all her life toward learning to fiddle for dances, theaters, parties, etc.?" It seems we are all wrong. I do not believe that, in all the fiddling she has done, week in and week out, sometimes practicing several hours a day, she has ever yet fiddled a dancing tune. If she has, I have never heard of it. It is all exercises, and the exercises are very much in line with the classical music that is almost Greek and Latin to your humble servant. She wants a violin worth a hundred dollars or more; then she wants to keep on taking lessons as long as Oberlin can give her assistance. But this is not all. After that she is to be trained under the city masters, and may go to Europe to perfect her studies. Of course, I talked with the professor about it, under whom she is taking lessons. He said she had shown more progress in a short time than any other pupil, except one, who had ever been under his care. He has now over forty pupils, and has taught violin-playing for more than twenty-five years. That is his business, and nothing else. Said I:

"But, my dear sir, what is to be the outcome of all this? What is she going to do with this musical education that takes so much time and

practice—in short, what has become of that one pupil you mentioned, who made more progress than she did?"

I can not remember the exact reply he made, but it was something like this:

"That one pupil, after she left me, availed herself of the best masters America afforded, and then she went to Europe to graduate; and now she gets a salary so high up in the figures I would hardly dare mention it."

"But, my dear sir, does she not get this great pay by playing for theaters? and is she not obliged to go among classes whose society we might at least call questionable?"

"Oh, dear! no. They pay her great sums of money to play before the finest, most intellectual, and best audiences to be found in the largest cities in the world."

"Mr. B., I have been told you are a Christian."

He smiled, and nodded his head.

"You have over forty pupils now, and have been engaged in just this kind of work for years, and yet regard it as worthy of the time and attention of the best people in the world. Well, I think I know a little more than I did yesterday. I thank you for your kind counsel and advice."

I presume likely *many parents* are reading what I have written here; and perhaps they are deeply interested. Perhaps some of them may say, "Well, brother Root, what are you and your good wife going to do about it?"

We have done this: Constance has already done some work in the office; she knows how; and if you want to see a Root work up to his best, you want to see him have an *object* in view, just ahead of him. She is going to help us in the office, so that she may have that violin that is so dear to her heart; and then she is going to *work* her way through so that she may be able to go on of herself, or, at least, without letting her father pay *all* of the expense. She is, as I was saying, through her own exertions, going to push ahead in this (to us) singular line of choice. While at her boarding-place, our host (he used to be a bee-man), who boards and lodges twenty young students, told me the following story:

A well-to-do German moved to Oberlin in order to educate his children. A daughter of his made remarkable progress; but the demands on the father's purse were much greater than he had anticipated. But she was smart, and the father was proud of her; and, altogether, he expended \$800 in giving her a good substantial education. So far, so good; but just at this crisis some presuming young man took a shine to the smart daughter, and—they got married. Her father was in the habit of telling the sad story to his friends, and he would always wind up with something like this:

"After I had paid out \$800, and given her all this education, she went and got married. Just think of it!"

At this crisis, the friends who hear his sad story usually laugh uproariously; but the poor father can not see where the laugh comes in. He evidently seems to think that it is \$800 thrown away. Now, dear parents who look on these pages, be careful that you do not fall into the error of our good German friend. Let us have faith in education; let us have faith in these children who are growing up or have grown up around our hearthstones. Let us remember that it is the *great God above* who has given us these singular likes and longings; and when we perceive that some one of them has a rare and unusual (and perhaps unlooked-for) gift from God the Father, let us not lose faith in them; and let us not lose faith in the great Giver of all good, who has seen fit to create us with so much alike and yet so *unlike*.



Judge not, that ye be not judged; for with what judgment ye judge, ye shall be judged.—MATT. 7:1.

THE Crane smoker is nearly perfected. Dr. Miller, to whom we submitted a sample, says, "That double-acting valve, so simple and effective, is a stroke of genius. * * * As nearly as I can tell without using it [the smoker] a whole season in the apiary, I believe you have the best smoker ever gotten up."

By the way the goods are going off, it is evident that there is much faith in next season. We have not had a good cold winter for some years. Who knows but that a good cold snapping winter, such as we have just had, when the ground has been covered with snow a large part of the time, is just what the clover needs to make it yield honey? Our winters have of late been peculiar, and so have our honey seasons. Let us hope that an extraordinary winter may bring an extraordinary flow of honey. But don't let our "hopes" cause us to invest unwisely.

We are all "broke up." We have been sitting before the desk *trying* to scribble off an editorial, as it was one of the kind that *wouldn't* "dictate." We've got something to say, but for the life of us we don't know *how* to say it or whether, indeed, we ought to say any thing at all. We refer to some kind, very kind things said of us in a biographical sketch, accompanied by a good portrait, in the *American Bee Journal*, of your humble servant. We seriously fear we do not deserve all of it; at all events we tender our awkward "thank you," and in the meantime will try to ward off that peculiar insidious malady that sometimes affects young men—the "big head."

THE Edison phonograph, which we placed in the office about a year ago, has proved to be a grand success and a great aid to the office. So valuable was it that we have recently put in another. Besides enjoying of an evening occasionally the pleasure of hearing choice music from world-renowned artists, we are enabled to clear up nearly all our correspondence every day. Before the days of the phonograph, our letters—at least some of them—had to lag simply because we could not get to them. The machines take the records evenings or at any time of the day most convenient, or when we can "get to it." They are always ready, and never get sick nor married. The dictated records are transcribed on a Smith Premier typewriter, the best business typewriter, in our estimation, of any writer on the market. These machines had such decided advantages over our old standard Remingtons that we replaced the three in the office for Premiers. As we have had some inquiries relative to our correspondence, perhaps the above will answer for all, and it is certainly a pleasure to us to be able to add our testimony to the value of these labor-saving devices.

N. B.—Matter for GLEANINGS, at least the greater part of it, is given to our old standby stenographer, "W. P."

CERESIN FOR FOUNDATION.

Look here, Dr. Miller; did it never occur to you that your second straw in this issue might turn out like one of the celebrated straws that

broke the camel's back? Such a quotation as you make, it seems to me, savors of heresy; and haven't we had heresy enough for a month or two back? I hereby caution any American, or German either, against undertaking to make foundation with the least particle of ceresin mixed with the wax. I obtained specimens of the substance from different markets, and I think I tested the matter thoroughly. Even the least admixture of ceresin, paraffine, or any other substitute for beeswax that has ever been found, will surely cause the combs to break down during the extreme heat of the summer. I once thought the thing was going to work nicely, and even put it on the market, as you may remember. It did work nicely until the hot weather came; and some of us had such a sad experience we thought we would remember it for at least fifteen or twenty years. Will some of our German friends sift this matter? If that item about 40,000 lbs. is a canard, like the machine-comb honey, it wants to be nipped in the bud before it goes a step further. Now, doctor, do you see what you came pretty near doing?

A. I. R.

WINTER LOSSES AT MEDINA.

We have had a very severe winter, as you know; and so far it has been very severe on the bees; and the worst part of it is yet to come, if we may judge by former seasons. It is only by keeping account of our errors that we are able to arrive at perfection.

We went into winter quarters with 150 colonies. A careful examination at this date, March 10, shows that 30 colonies, or 20 per cent of them, are dead. Not since the terrible winter of 1880-'81 have we been obliged to record a greater mortality than 5 per cent, with the single exception of the winter of 1890-'91, when we lost 15 per cent of those outdoors. But during that winter we lost only 2 per cent in the cellar. It is pretty evident, that, if a large proportion had been wintered indoors this year—they are all outdoors—our percentage of loss would have been greatly reduced. Last fall, for experimental purposes (as we have before announced), we prepared our bees in several different ways. Nearly half were under sealed covers; and the rest were under the old absorbing cushions. Now, here are the figures for the percentage of losses up to date:

Of the 37 put into small chaff hives with sealed covers, 26 per cent have gone up; of the 51 put into winter cases, 17 per cent are dead; of the 57 in old-fashioned chaff hives, with absorbing cushions, 10 per cent fail to respond; of the 5 in the house-apiary, *all* are dead.

We want the truth to come out, no matter if it does demolish some of our pet hobbies in regard to wintering; and from the above report it would look as if the sealed-cover idea had received an "awful black eye;" and we presume that our friend C. P. Dadant, as soon as he sees this, will throw up his hat, and shout back toward Medina, "I told you so." Now, look here, friend C. P., we are not going to give up just yet on sealed covers: for we *think* we see where our mistake was made. We have held, for a few months back, that lots of packing was not so necessary above and around covers that were sealed, and accordingly used very much less; but we take that all back now. Bees must have just about as much packing on one plan as the other. Again, on account of the late feeding, about half the supposed sealed covers were not sealed, because it was too cold for the bees to do much of that work.

There is another factor that comes in; and that is, that our colonies were fed much later than usual, and the winter, coming on much earlier, caught us in rather bad shape. This is

a rather bad confession to make, when the advice given in our catalogue, and through the columns of GLEANINGS, has been to prepare for winter *early*. But you know how it is, where colonies have been running to their highest notch in queen-rearing; and uniting a lot of queenless nuclei never makes a good and satisfactory colony. Perhaps 50 per cent of our bees were of this sort. This, together with the late feeding and severe winter, gives us a rather bad showing.

Reports show that bees in the cellar or in special repositories are wintering nicely; and while reports from those outdoors show nothing like as bad a state of affairs as in the winter of 1880-'81, the losses for outdoors are heavier than usual. Up till this winter we have been having from 33 to 50 per cent of our bees in the cellar; but last fall we put in a furnace, and Mrs. Root wanted the only available bee-cellar for the storage of vegetables. We thought, therefore, we would try them all outdoors. It is a pretty safe way to winter both ways. During very severe winters the advantage is in favor of those in the cellar; but in warm winters, or in milder climates, they are better off outdoors.

PUNICS—SHOULD THEY BE INTRODUCED INTO THIS COUNTRY?

The editor of the *Apiculturist* thinks we are unfair, because, he says, we publish only testimonials that are against the so-called Punic bees. Having seen only two favorable reports, outside of those interested in their sale, both of which we published, it seemed to us that we were giving them their fair measure of justice. Speaking of fairness in giving of both sides, it is a little singular that Mr. Alley publishes of late none of the *adverse* reports regarding those African bees. Is it quite fair on *his* part to be so one-sided? or is it fair to say that the testimonials from good reliable correspondents are untrue, because they differ from him? And, again, he says, "Nearly every issue of this paper [his own] has contained one or more letters, *unsolicited by us*" (the italics are ours), "from those who have Punics, and nearly all speak in the highest terms of them." We were astonished at this statement, and proceeded to go carefully over the last 12 months of the *Apiculturist*. Now for results: Instead of finding "one or more unsolicited testimonials in nearly every issue" we found only five for the whole year, that could be considered as in any wise favorable, outside of those who are interested in their sale. One of these reports was ours, given early in the season; and, as our readers know, we have since had reason to reverse our opinion. Two more of these reports were given very cautiously, the writers being unable at the time to give a decided opinion, although they *thought* the Punics promised well. This would leave *really* only two favorable reports; and it is quite probable the writers since, after further experience, have had good reason to change their minds. First impressions are by no means correct, as we all know. If Mr. Alley will give us the pages where in "nearly every issue . . . one or more unsolicited testimonials" will be found, it will give us an opportunity to correct ourselves, if wrong.

We admit that we have published a good many unfavorable things regarding Punics. One of them came from a breeder, H. Fitz Hart, who advertised Punic queens early in the season; but after he had given them a careful test he pronounced them the "biggest frauds," and added that he could not advertise them further, and accordingly withdrew his advertising—see page 817, Nov. 1st. Another one, J. S. Clock, Urban, Pa., who advertised the same

bees on page 559 of our issue for July 15, expecting to advertise them right along, after one insertion of his advertisement, requested us to take it out, as he would not be willing to stand the complaints that would be almost sure to come from such bees, because his own Punics, as in our own case, were behaving very badly. When two of the queen-breeders who once thought favorably of the Punics cease to advertise them; when three competent bee-keepers—Benton,* Baldensperger, and Cowan, having handled them in their native land, pronounce against them; when nearly all reports outside of those interested in their sale, at home and abroad, are decidedly adverse; and when careful tests in our own apiary were unfavorable to the bees, we can not think that we have been unfair.

But this Punic controversy is getting to be tiresome, and we propose to have nothing more to say on the subject for the present. We regret very much to take as much space for this as we have, and would ignore it as we have other "flings" in the *Apiculturist*; but in this case we felt so sure that the introduction of Punics into apiaries of other good bees would do great mischief, that it was a duty we owed to the fraternity to set forth a few facts. If Mr. Alley proposes to push the sale of this kind of bees, in the face of these facts, we have nothing to say.

P. S.—After reading the foregoing it occurred to us that some one might think we had an "ax to grind;" viz., that, in order to boost the Italians ahead another notch, we must necessarily kill the Punics. Such was far—very far—from being the case. Early last season there was a time when the Punics *promised* well, and we actually went so far as to obtain the names of a couple of resident bee-keepers who could import the bees direct from North Africa to us. If the bees had subsequently behaved themselves we should have imported them direct and sold them.

KIND WORDS FROM OUR CUSTOMERS.

I would not do without GLEANINGS, even if it cost two dollars. LUCINDA RITTER.
St. Joseph, Mo., Feb. 25.

The augite mat is all right—the best thing invented for woman, since the cooking-stove. HENDERSONVILLE, N. C. MRS. S. A. GURLEY.

I like the 8-frame Dovetailed hive with thick top-bar Hoffman frames, exceedingly well; the frames are easy to handle, and there are no burr-combs. CARPENTER, ILL. EDW. SMITH.

I used your seeds last year, and they gave the best satisfaction of any I ever purchased. The packets contained more seed, and it all grew nicely. BEAUFORD, MINN., Feb. 3. J. N. WADDELL.

I have tried your Daisy foundation-fastener, and, sure enough, it's a daisy and no mistake. I am not an expert yet as to speed; but when they are once in they are bound to stay. S. FARRINGTON.
Coruna, Ind.

My supplies were received on the 27th. I am entirely satisfied. The foundation beats any thing I ever saw. It looks so nice and pretty I hate to use it. R. C. JONES.
Dyer, Tenn., Dec. 30.

Each member of the family at our home was asked to give a list of the papers he wished for next year. When the lists were handed in, GLEANINGS was found at the head of each. M. HAWKSWORTH.
Medina, Ont., Can.

*Benton, at the Washington convention, stated that the temper of the Punics was ten times as bad as that of the Cyprians.

I received my goods, and find every thing all right. I am pleased with the goods, and also thank you for your prompt attention and honest care. MOHNSTORE, PA. GEO. G. LESS.

I got 30 hives from a firm in — that make the Dovetailed, but they are such poor things I will not use them. The hives I got of you last spring are perfect, I think, and so do my neighbors. BRAZIL, IOWA. CHAS. LAWRENCE.

Mr. Root:—Since writing you this morning, inclosing draft, goods have come, and, so far as examined, I find them simply perfect. What surprises me is, how you can do so much work and furnish such material as you do for the prices you charge. WASHINGTON, IND., March 13. J. A. SCUDDER.

I prize GLEANINGS as much as or more than any other paper I take, even if it is published away off in Ohio, where I never expect to be able to go. How much I should like to shake the hand of the editor, no one knows but the humble writer. R. C. ROTSE.
Hookerton, N. C., Feb. 8.

Editor Gleanings:—You little know the exquisite pleasure I take in reading the many good things that come to us through our ever welcome visitor, GLEANINGS. Especially, Mr. Root, do wife and I enjoy "Ourselves and Our Neighbors," as they are so friendly and confidential. May God in his wisdom reward you.

Yes, I too am a bee-keeper, and, of course, think a great deal of my pets. I was the first one in the neighborhood to adopt a frame hive, and my venture was looked at askance by many, especially by my aged father, who predicted the direst calamities, but they haven't come yet, as my bees are doing as nicely as possible. By the way, I should have lost a \$1.50 queen had it not been for GLEANINGS. I purchased a queen from you very early (in April I believe), for a colony that lost its queen during winter; but when she came, the colony was so reduced it seemed next to impossible to save them, and in the nick of time I remembered "to remove a stronger swarm, set the weaker one in place of it." The first time I did this I chose a moderately strong swarm and set the weak one in its place. This was to guard against killing the queen. This strengthened them considerably. I then moved a very strong swarm and placed them in their stead, when, presto! my hive was just booming, and soon after actually cast a fine swarm and gave a surplus of 20 lbs. of comb honey. I regard this as doing pretty well for a beginner during a season when anybody's else bees hardly cast a swarm. So much for a good bee-paper.

The thick-top frames are perfection with me, as no burr-combs at all are built on them. ODIN, MO. D. B. THOMAS.

EGGS for Early Hatching. To those who wish to raise Silver Laced Wyandotte hens I can furnish eggs this year at \$1 for 13, or \$1.75 for 26 eggs. These eggs are from pure-blooded fowls that have been finely bred. J. S. MASON, Medina, Ohio.
Reference, A. I. Root.

A B C OF STRAWBERRY + CULTURE. A * BOOK * FOR * BEGINNERS.

BY T. B. TERRY.

This is Terry's latest and best work, and has received some very high words of praise. Who that keeps bees does not also have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be the better for reading it. Pages one-half size of this. Fully illustrated; 144 pages. Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, O.

FRIENDS,

I have a fine strain of Italian bees, and my apiary will be located six miles from other bees, so perfect mating of queens is assured. Will be pleased to receive your orders. Prices are as follows:

1 untested queen, \$1.00	6 untested queens, \$4.75
3 " " 2.75	12 " " 6.50

Tested queens, each, \$1.50.

Safe arrival guaranteed. Address

FRANK H. HOWARD,
GARDEN CITY, KANSAS.

6-8-10d

Please mention this paper

Jennie Atchley

Is headquarters in the South for queens. Untested (either 3 or 5 bands), March, April, and May, \$1.00 each; \$5.00 for six, or \$9.00 per doz. June and after, 75 cts. each, \$4.25 for six; \$8.00 per doz. Prices for breeders, and by the quantity, on application. Safe arrival and satisfaction guaranteed.

Jennie Atchley, Greenville, Hunt Co., Tex.

Please mention this paper.

6-7-8d

SUPPLIES.

Large illustrated catalogue free; or send 10c in stamps for **THE BUSY BEE**, a book telling how to manage them.

WALTER S. POWDER, Indianapolis, Ind.
4-12db 175 E. Walnut Street.

BUY your **HIVES** where lumber is cheapest. That's at LeSueur, Minn. Catalogue free.
5tfdb **F. C. ERKEL.**



IMPROVED VICTOR INCUBATOR.
Simple, easy of operation, self-regulating, reliable, fully guaranteed. Send 4c. for illus. Catalogue. Geo. Ertel & Co., Mfrs. Quincy, Ill. U.S.A.

SOLID COMFORT PLOW. Little used. Take \$30. 6-7d J. H. COLVILLE, Goshen, Ohio.

A

large number of fine queens on hand; yellow and prolific; ready April 15th; warranted queens, \$1; 6 for \$4.50; select tested, yellow to the tips, suitable for breeders, each, \$2. Reference, A. I. Root. 3tfdb
W. H. LAWS, Lavaca, Seb. Co., Ark.

**5-BANDED BEES.
3-BANDED**

Nucleus colonies. Circular free. 3-8db J. F. MICHAEL, German, Darke Co., O.

Eastern Supply House.

We furnish every thing used in the apiary, and at bottom prices. Illustrated circular free.

I. J. STRINGHAM, 92 Barclay St., N. Y.

21-20db

Please mention this paper.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 29c per lb., or 33c for best selected wax.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

BUFF COCHIN. BRAHMAS. LIGHT BEES. ITALIAN.
Circular. 5-10db E. SHIMEL, McCuneville, O.

BEE-KEEPERS. NOTICE.

Send to E. J. SHAY, Independence, Preston Co., W. Va., for catalogue of Apianian Supplies. 4tfdb

READY AGAIN!

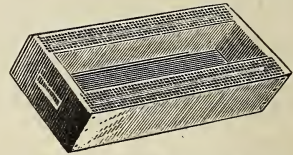
With those nice Golden Queens, reared by L. O. Little's method. Untested, March, April, and May, \$1.00; 6 for \$4.75; 12 for \$8.50. June and later, 75c each; 6 for \$4.00; 12 for \$7.50; 3-banded tested, \$1.50. For select and breeders, write for prices. Safe arrival and satisfaction guaranteed. 5tfdb

J. B. CASE, Port Orange, Vol. Co., Fla.

In responding to this advertisement mention GLEANINGS.

A. E. MANUM'S**LEATHER-COLORED****ITALIAN QUEENS**

Are superior to all others for business, is the verdict of those who have them. PRICES: one untested, \$1; six, \$5.50; twelve, \$10.00. Tested, \$1.50 each. Selected for breeding, \$2.50 each. One yearling, tested, in June only, \$1.00; six, \$5.50; twelve, \$10.00.

**THE MANUM FEEDER.**

Models of Manum's new "Rapid" feeder with, full printed directions how to make, and what, when, and how to feed for best results, \$1.00 by mail, postage paid. Descriptive catalogue mailed free on application. 5-12db

A. E. MANUM, Bristol, Vt.

In responding to this advertisement mention GLEANINGS.

Beautiful Golden Queens.

My five-banded Italians are bred from the very best of stock by Doolittle's improved methods, and mated to the yellowest of drones from selected colonies, and I guarantee them to give entire satisfaction. Untested queens are all warranted purely mated. 1 untested queen, March, April, and May, \$1.15 each; \$12.00 per doz. Tested, \$1.50 each. Select Tested, \$2.50. Guarantee prompt and safe delivery. Send for circular. **W. P. CROSSMAN,**

Money-order office. **Ballinger, Tex.**

Reference: 1st Nat. Bank of Ballinger. 5tfdb

In responding to this advertisement mention GLEANINGS.

WE OFFER**COMB FOUNDATION**

WHOLESALE AND RETAIL,

AT VERY LOW PRICES.

Satisfaction and all work guaranteed.

We have ordered our mills, etc., and expect to be able to fill orders in a few weeks. We will arrange for a large capacity, and devote all our time to the business, so orders can be filled promptly. Our prices will be at least from 5 to 10 cts. per lb. below the prevailing prices of other years. We expect our foundation to equal other makes, and to excel them all in a few respects, to which we call your attention in our price list. 5-10db

BEEWAX WANTED. Write for prices.

W. J. FINCH, JR.,

931 E. Monroe St., **Springfield, Ill.**

In responding to this advertisement mention GLEANINGS.

FOR SALE

280 acres of timber land; cleared, 25; orchard, 10. Three never-failing springs; large barn; cellar 38x16. House enclosed. Good location for bees. Address **MISS MARY A. WOOSTER, Van Buren, Ark.**